DOCUMENT RESUME

ED 344 016 CE 060 742

TITLE Articulated Curriculum for Agricultural Occupations. 2 + 2. Second Year Final Report.
INSTITUTION Daingerfield-Lone Star Independent School District, Daingerfield, TX.
SPONS AGENCY Texas Higher Education Coordinating Board, Austin. Community Colleges and Technical Institutes Div.
PUB DATE 90
NOTE 118p.; For related documents, see ED 337 675-678 and CE 060 741.
PUB TYPE Reports - Descriptive (141)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS Academic Education; Advisory Committees; *Agricultural Education; *Agricultural Occupations; *Articulation (Education); Business Administration; Catalogs; College School Cooperation; *Competency Based Education; Course Descriptions; Course Objectives; Curriculum Development; Dairy Farmers; Educational Planning; Floriculture; High Schools; Job Skills; Nurseries (Horticulture); Occupational Information; School Business Relationship; Small Businesses; Two Year Colleges; *Vocational Education
IDENTIFIERS 2 Plus 2 Tech Prep Associate Degrees; Poultry Farms

ABSTRACT

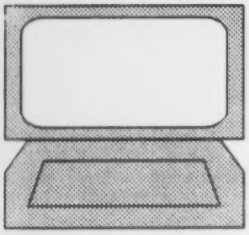
The Agriculture 2+2 Curriculum Development Project was an articulated training program linking the last 2 years of secondary and the first 2 years of postsecondary training designed to prepare students for employment in 3 or more agricultural technology occupations. The curriculum provided for the development of saleable skills after grade 12 and advanced employment in technical agriculture at the associate degree level. Administrators developed and implemented a competency-based program using input from secondary schools, postsecondary institutions, business, industry, the Texas Higher Education Coordinating Board, and the Texas Education Association. Three procedures were executed in the second project year: instructional materials were identified; a basic certificate program with course outlines was developed; and a "how-to" manual was developed. (The bulk of this document contains reference materials and information on basic certificate programs for four occupational areas: dairy products, garden center management, poultry products, and retail florist. Catalog numbers and titles of all reference materials are included. For each program listed, course objectives and course outlines are included.) (NLA)

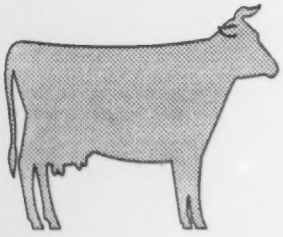
****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

#11110011

2 + 2

ED344016





Agriculture 2+2

Second Year Report

CE060742

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

BEST COPY AVAILABLE

2 + 2

Articulated Curriculum for Agricultural Occupations

Second Year Final Report

Funding Information

Project Title:	Linking the Last Two (2) Years of High School and the First Two (2) Years of a Postsecondary Agriculture Technology
College Coordinating Board Project Number:	#00110003
Funding Source:	Carl D. Perkins Vocational Education Act, Title IIB
College Coordinating Board Project Officer:	Eduardo Gaytan Coordinating Board - CCTI Division Austin, Texas
Contractor:	Northeast Texas Community College Mount Pleasant, Texas
Project Staff:	Jack Foreman, Project Administrator Bill E. Lovelace, Technical Advisor Walter York, Project Director
Disclaimer:	This publication was prepared pursuant to a con tract with the Texas Higher Education Coordinating Board. Contractors undertaking such projects under government sponsorship are encouraged to express freely their judgement in professional and technical matters. Points of view or opinions of the contractors, therefore, do not necessarily represent official Texas Higher Education Coordinating Board position or policy.

Acknowledgements

The project involved the participation of a number of individuals to whom the project staff is very grateful. The success of the first year of the project would not have been possible without the input provided by the advisory committee. Special credit and gratitude is extended to the members of the project Technical Advisory Committee.

Mr. Jay Eudy
Texas Education Agency
Austin, Texas

Mr. Mark Scheu
Daingerfield-Lone Star ISD
Daingerfield, Texas

Dr. Jim Tollett
Northeast Texas Community College
Mt. Pleasant, Texas

Mr. Ed Hagen
Palo Alto College
San Antonio, Texas

Dr. Joseph Kuti
Texas A&I University
Kingsville, Texas

Mr. Gordon Ford
Agricultural Extension Service
Sulphur Springs, Texas

Mr. Mark Aldridge
Aldridge Nursery
Von Ormy, Texas

Mr Aaron Alejandro
Congressman Bill Sarpaulis' Office
Wichita Falls, Texas

Mr. Eduardo Gaytan
Coordinating Board
Austin, Texas

Dr. Richard Pulaski
Angelina College
Lufkin, Texas

Dr. John Carnes
Northeast Texas Community College
Mt. Pleasant, Texas

Dr. Herman Brown
Texas A&M University
College Station, Texas

Dr. James Minor
Pilgrim's Pride Corporation
Pittsburg, Texas

Dr. John Dillingham
Southwest Texas State University
San Marcos, Texas

Mr. Randy Harrison
Wolfe Nursery
San Antonio, Texas

Acknowledgements

Also, gratitude is expressed to Mr. Ed Hagen who conducted the horticultural development at Palo Alto College of San Antonio, Texas.

A very important "thank you" is extended to the consultants of both projects who devoted many evenings and weekends analyzing and synthesizing data and reporting the data in usable form. Consultants who contributed to the project results are as follows:

Mr. Doug Meadows
Simms ISD
Simms, Texas

Mr. Gary Chandler
Quitman ISD
Quitman, Texas

Mr. Henry (Buck) Schirmer
Natalia ISD
Natalia, Texas

Mr. Mike Thompson
Mt. Pleasant ISD
Mt. Pleasant, Texas

Mr. Mark Scheu
Daingerfield-Lone Star ISD
Daingerfield, Texas

Mr. Rodney Kappmeyer
Highland H.S
San Antonio, Texas

Mr. Garry Boyd
Union Grove ISD
Gladewater, Texas

Mr. Sam Hollingsworth
Hawkins ISD
Hawkins, Texas

Ms. Lisa Roberts
East Central ISD
San Antonio, Texas

Mr. Burke Bullock
Winnsboro ISD
Winnsboro, Texas

Mr. Robert Marshall
Carthage ISD
Carthage, Texas

Ms. Pamela Fort
Lee H.S., North East ISD
San Antonio, Texas

Mr. Tom Howell
Sulphur Springs ISD
Sulphur Springs, Texas

Mr. Johnny Lennon
North Hopkins ISD
Sulphur Springs, Texas

Mr. Jimmy Cox
Waskom ISD
Waskom, Texas

Mr. James Hodges
Medina Valley ISD
Castroville, Texas

Acknowledgements

The project involved the participation of a number of agricultural industry representatives who provided input concerning the duties and tasks involved in the various agricultural industries relative to this 2+2 project.

Mr. Timothy Hooper
Personnel Manager
Carthage Complex
Tyson Foods, Inc.

Mr. David Van Hoose
Senior Vice-President of Processing
Pilgrim's Pride, Inc.
Mt. Pleasant, Texas

Mr. Mark Haecker
Fresh Processing Superintendent
Tyson Foods, Inc.
Carthage, Texas

Mr. James P. Cawley
Further Processing Superintendent
Tyson Foods, Inc.
Carthage, Texas

Mr. Paul Schweizer
Owner
Hill Country Gardens
San Antonio, Texas

Mr. Malcom Beck
Founder-Owner
Garden - Ville Fertilizer Co.,Inc.
San Antonio, Texas

Mr. Frank Nicholson
Operations Manager
Lillie's Plantscapes
San Antonio, Texas

Ms. Anita Trevino
Sales Manager
Green Grass, Inc.
San Antonio, Texas

Mr. Mark Gunderson
Plant Superintendent
American Milk Producers Incorporated
Sulphur Springs, Texas

Mr. Don McCool
Owner/Manager
McCool Dairy
Sulphur Springs, Texas

Mr. James Maxton
Owner/Manager
Maxton Broiler Farms
Mt. Pleasant, Texas

Mr. and Mrs. Jimmy Parker
Owner/Managers
Parker Broiler Farms
Mt. Pleasant, Texas

Table of Contents

Page

I. GENERAL PROJECT DESCRIPTION 1

II. SPECIFIC GOALS AND OBJECTIVES 2

III. PROCEDURES 3

IV. SECOND YEAR RESULTS AND BENEFITS 4

A. Second Year Reference Materials 5

1. Dairy Products Management Reference Materials 6
2. Garden Center Management Reference Materials 14
3. Poultry Products Management Reference Materials 24
4. Retail Florist Management Reference Materials 30

B. Basic Certificate Programs 40

1. Dairy Products Management Basic Certificate Program 41
2. Garden Center Management Basic Certificate Program 59
3. Poultry Products Management Basic Certificate program 75
4. Retail Florist Management Basic Certificate Program 93

C. Postsecondary Reference Information 109

D. Agriculture 2+2 How To Manual 110

I. GENERAL PROJECT DESCRIPTION

The overall goal of the Agriculture 2+2 Curriculum Development Project was to develop a 2+2 articulated training program that linked the last two years of secondary and the first two years of postsecondary training to prepare students for employment in three or more occupations in the field of agricultural technology.

The curriculum was to provide for the development of saleable skills, in the heirarchy of agricultural technology, at the end of grade 12 and advanced employment in technical agriculture requiring less than a baccalaureate degree on completion of the curriculum at the associate degree level.

The Technical Advisory Committee was reorganized with some old members being replaced by new members. Those that were replaced requested to be dropped because of time or other conflicts.

The TAC served three major roles in the project:

1. Served as a steering committee to the project staff
2. Reviewed and approved all research/developmental activities and project products
3. Served as resource persons in providing technical assistance to the project staff

Project information was disseminated to secondary schools and postsecondary institutions at various meetings around the state.

The first year of the secondary curriculum was partially implemented at three secondary schools; Daingerfield High School, Mt. Pleasant High School, and Gilmer High School. Be

II. SPECIFIC GOALS AND OBJECTIVES

Specific goals and objectives as outlined in the Project Description for year two were:

1. To continue the development and implementation of a competency based 2+2 articulated program utilizing input from secondary schools, postsecondary institutions, business, industry, the Coordinating Board, and the Texas Education Agency.

   Objective 1-A. Utilize the Technical Advisory Committee (TAC) which was organized in the first year of the project..

   Objective 1-B. Implement the first year of the secondary curriculum.

   Objective 1-C. Develop instructional materials for the second year of the program.

   Objective 1-D. Develop a basic certificate program to be delivered at the postsecondary level.

   Objective 1-E. Develop postsecondary instructional materials.

   Objective 1-F. Produce a "how to" manualk for 2+2 program development.

   Objective 1-G. Disseminate project information to state postsecondary institutions.

III. PROCEDURES

Because of the late start of the project the first year, the secondary curriculum was not fully identified before secondary schools scheduled their courses for the 1990-1991 school year. Once these courses were scheduled, secondary administrators did not wish to change; therefore, some courses needed were not taught.

Instructional materials for the second year of the project were identified by secondary and postsecondary instructors and assembled by project staff.

A basic certificate program with course outlines was developed.

Postsecondary instructional materials were developed.

A "How To" manual was developed for the Agriculture 2+2 program.

IV. SECOND YEAR RESULTS AND BENEFITS

The following activities and products have been produced:

1. A list of reference materials for the second year of the program.
2. A basic certificate program that covers the materials and competencies of the first two years of the program. Included are course descriptions and course outlines.
3. Postsecondary instructional materials including course objectives, instructional outlines, and competency profiles.
4. A "How To" manual for agriculture 2+2 program development.

SECOND YEAR REFERENCE MATERIALS

DAIRY PRODUCTS MANAGEMENT REFERENCE MATERIALS

Dairy Science References

Instructional Materials Service
Texas A&M University
F.E. Box 2588
College Station, Texas 77843
(409) 845 - 6601

Catalog Number	Title
8402	Selecting Dairy Cattle
8396	Breeds of Dairy Cattle
8642-A	Livestock, Dairy, and Poultry Production
8664-A	Preparing Milk for Processing
8664-B	Processing Milk and Dairy Products
8665-A	Processing Cultured Milk Products
8665-C	Processing Frozen Deserts from Milk
8665-D	Preparing Butter and Concentrated/Dried Milk Products
0037	Milk Processing Plant Employee
0039	Dairy Farm Worker
0227	Science of Providing Milk for Mankind
0407	Linear Classification of Dairy Cattle - Manual
0408	Questions and Answers on Federal Milk Marketing Orders
0409	Judging and Scoring Milk and Cheese
0410	Sediment Standards for Milk and Milk Products
4002	Dairy Cattle Evaluation Handbook
4006	Feeding Dairy Cattle
4022	Artificial Insemination of Livestock
4028	The Cows Udder and How It Functions
4035	Dairy Foods Evaluation Handbook
5017	1980 Dairy Products Judging - Milker Parts (Slides)
5019	Breeds of Dairy Cattle (Slides)
5076	1979 State Dairy Judging - Jersey (Slides)
5077	1979 State Dairy Judging - Holstein (Slides)
5101	1982 Judging Dairy Cattle - Jersey (Slides)
5102	1982 Judging Dairy Cattle - Holstein (Slides)
5115	1984 Dairy Cattle Judging (Slides)
5119	1985 Linear Classification of Dairy Cattle (Slides)
9168	Apple - ID - The Dairy Cow (Computer Program)
9203	Apple II+E/C - Dairy Production and Related Review (Computer Program)
9555	Fitting Dairy Cattle (VHS Video)
9556	Showing Dairy Cattle (VHS Video)
9552	Judging Dairy Cows (VHS Video)
9553	Judging Dairy Heifers (VHS Video)
9554	Introduction to Dairy Judging and Oral Reasons (VHS Video)
9557	Dairy Judging, TAMU (VHS Video)
9586	Practice Dairy Judging I (VHS Video)
9587	Practice Dairy Judging II (VHS Video)

****

Curriculum Publications Clearinghouse
Western Illinois University
Harrabin Hall 46
Macomb, Illinois 61455

V-124 V-Tech Catalog - Dairy Worker

****

Hobar Publications
1234 Tiller Lane
St. Paul, Minnesota 55112
(612) 633 - 3170

Computer Programs

AP2 - AG110 II+,IIe,IIc	Dairy Production and Related Review
AP2 - AG110 - 3.5 IIGS	
IBM - AG110 IBM PC MS-DOS	
IBM - AG110 - 3.5 IBM PC	
TRS - AG110 TRS 80 III,4	
MAC - AG110	
IBM - AG114 IBM or Compatible	Dairy Ration Balancing
TRS - AG114 TRS 80 I,III,4 48K	
AP2 - AG118 II+,IIe,IIc	Milk and Milk Quality and Related Review
AP2 - AG118 - 3.5 IIGS	
IBM - AG118 IBM PC MS-DOS	
IBM - AG118 - 3.5 IBM PC	
TRS - AG118 TRS 80 III,4	
MAC - AG118	
AP2 - AG100 II+,IIe,IIc,IIGS	Milk Let Down

Videos

15400678	Dairy Production and Management: Animal Acquisition/Reproduction
15400681	Dairy Production and Management: Herd Health/Husbandry
15400679	Dairy Production and Management: Lactation
15400680	Dairy Production and Management: Nutrition
15400682	Dairy Production and Management: Waste Management/Buildings and Equipment
15400859	Dairy Production and Management: Full Set of Above

Hobar Publications
1234 Tiller Lane
St. Paul, Minnesota 55112
(612) 633 - 3170

Texts and Other References

19527-1	Dairy Cattle Production
709818-9	Principles of Dairy Science
1678-7	Dairy Farm Management
F-517	Milking Cows and Controlling Mastitis

****

Teaching Aids Inc.
P.O. Box 1798
Costa Mesa, California 92628-7098

VT-107	Semen Collection and Processing (VHS Video)
VT-110	Artificial Insemination in Cattle
VT-109	Calving Problems and Procedures

Instructional Materials Service
Agriscience 332 References

Catalog Number	Title
CG332	Curriculum for AgSc 332
4921	Teacher's Key for AgSc 332
K332	Teacher's Key - AgSc 332 Topic Tests
T332	Topic Tests for AgSc 332
8816	The Importance of Livestock Management
8817-B	Anatomy and Physiology of Other Animal Body Systems - the Nervous, Urinary, and Endocrine Systems
8817-C	Animal Behavior
8818-A	Artificial Insemination
8818-B	Embryo Transfer
8818-C	Pregnancy Diagnosis (Palpation)
8818-D	Care of Livestock at Parturition
8820-A	Evaluating and Grading Carcasses and Wholesale Cuts
8821-B	Formulating Rations for Domestic Animals
8821-C	Quality of Commercially Prepared Feeds
8821-D	Feeding Practices of Beef, Swine, and Sheep
8822-A	Role of Bacteria, Fungi, Viruses, and Nutrition in Causing Animal Diseases
8822-B	Causes, Symptoms, Prevention and Treatment of Various Animal Diseases
8822-C	External and Internal Parasites of Poultry
8822-D	External and Internal Parasites of Livestock
8822-E	Use of Pharmaceuticals in Vaccination and Immunization
8823-A	Planning Livestock Facilities
8823-B	Animal Welfare and Animal Rights
8823-C	Research in Animal and Food Science Technology
8332	Selection of Rabbits
8391	Animal Growth and Development
8399	Selecting Beef Cattle
8400	Selecting Swine
8401	Selecting Sheep
8402	Selecting Dairy Cattle
8403	Selecting Poultry
8405	Animal Reproduction
8406	Animal Genetics
8407	Methods of Animal Breeding
8643	Evaluation and Selection of Goats
8644-A	Live Animal Evaluation and Grading
8644-B	Poultry Carcass Evaluation
8645-A	Safe Handling and Restraining of Animals
8645-B	Surgical Skills - Castration
8645-C	Surgical Skills - Dehorning
8645-D	Surgical Skills - Docking
8645-E	Performing Common Immunization Skills
8645-F	Methods of Identifying Livestock
8645-G	Livestock Transportation
8646-A	The Circulatory System
8646-B	The Respiratory System

Instructional Materials Service
Agriscience 332 References
Continued

Catalog Number	Title
8646-C	The Skeletal System
8646-D	The Muscular System
8646-E	The Digestive System
8647-A	Feed Nutrients
8647-B	Classes of Feed
8647-C	Feed Additives
8832-A	History of Livestock Domestication
8832-B	Importance of Livestock Domestication
8832-C	Livestock Breeds of Economic Importance
8833-A	External Anatomies of Domesticated Animals
8833-B	Skeletal Systems of Domesticated Animals
8833-C	Digestive Systems of Domesticated Animals
8833-D	Circulatory Systems of Domesticated Animals
8833-F	Respiratory Systems of Domesticated Animals
8833-G	Nervous Systems of Domesticated Animals
8833-H	Endocrine Systems of Domesticated Animals
8833-I	Epithelial, Connective, and Muscle Tissues of Domestic Animals
8834-A	Early Mendelian Theories of Genetics
8834-B	DNA, RNA, and Protein Synthesis
8834-C	Animal Cell Division

Instructional Materials Service
Agriscience 333 References

Catalog Number	Title
CG333	Curriculum for AgSc 333
4922	Teacher's Key for AgSc 333
8848-A	Soil and Plants: Importance and Interrelationship
8380	Importance and Formation of Soils
8381	Soil Formations
8511	Elements of Weather
8382	Components and Properties of Soil
8383	Soil Classification Systems
8850-A	Land Use Classification
8850-B	Land Judging
8851-A	Reading, Interpreting, and Using Soil Maps
8851-B	Soil Surveys
8851-C	Capability Maps and Numbering Systems
8851-D	Soil Engineering Properties and Their Effect on Land Use
8852-A	Soil Conservation Service and Soil and Water Conservation Districts
8852-B	Agricultural Stabilization and Conservation Service
8852-C	Watershed Districts and Other Soil and Water Regulating Agencies
8633-A	Soil Sampling Methods
8853-A	Commercial Soil Testing Procedures
8853-B	Soil Test Analysis: Interpretation and Use
8636-B	Fertilizers: Utilization and Types
8640-B	Inorganic and Organic Fertilizers
8640-C	Methods/Rates/Times - Fertilizer Application
8634-A	Soil Erosion: Kinds, Factors, Control
8855-A	Urban and Rural Land Use Programs
8856-A	Land Evaluation: Assessing Soil Characteristics
8856-B	Land Evaluation: Applying Land Use Principles
8856-C	Land Evaluation: Rural and Urban Land Appraisal Methods
8637-A	Economic Importance and Uses of Major Agricultural Crops
8857-A	Importance of Plants in the Food Chain
8384	Plant Structure and Functions of Plant Parts
8858-A	Photosynthesis
8388	Sexual and Asexual Reproduction of Plants
8858-B	Plant Hybridization and Preservation of Pure Lines
8859-A	Selection of Seed Cultivars and Planting Practices
8512	Saving Our Heirlooms - Seeds
8860-A	Tillage Practices: Conventional, Minimum and No-Till
8860-B	Safe Application of Chemicals on Plants
8860-C	Pest Control in Crops
8861-A	Alternative Crops for Agricultural Land (Texas)
8510	Aloe Vera: The Wonder Plant
8513	Edible Flowers
8861-B	Urbanization of Food Plant Production
8861-C	Turfgrass Care for Lawns
8861-D	Research in Plant and Soil Sciences
8514	Conducting Research

Instructional Materials Service
Agriscience 323 References

Catalog Number	Title
CG323	Curriculum Guide for AgSc 323
4919	Teacher's Key for AgSc 323
8790	Understanding and Applying Safe Work Practices
8791-A	Identifying, Selecting, Maintaining, and Operating Tools and Equipment
8791-B	Planning & Maintaining Agricultural Power Service Centers
8792-A	Identifying and Selecting Machines and Equipment
8792-B	Identifying and Maintaining Component Materials
8792-C	Identifying, Selecting, and Using Fasteners
8792-D	Identifying and Servicing Monitoring, Sensing, and Metering Devices
8792-E	Adjusting, Calibrating, Maintaining and Operating Equipment
8793-A	Understanding Principles of 2-Cycle and 4-Cycle Internal Combustion Engines
8793-B	Maintaining & Trouble Shooting Small Air-Cooled Engines
8793-C	Disassembling and Reassembling Small Air-Cooled Engines
8794-A	Selecting and Operating Tractors
8794-B	Maintaining Air Intake and Exhaust Systems
8794-C	Selecting Lubricants and Maintaining Lubrication Systems
8794-D	Fuel System Maintenance; Fuel Selection, Storage & Handling
8794-E	Maintaining DC Electrical Systems
8794-F	Maintaining Power Trains
8794-G	Maintaining Hydraulic Systems
8794-H	Maintaining Steering and Braking Systems
8794-I	Maintaining the Air Conditioning System
8795	Selecting, Maintaining, and Operating Electric Motors
8796	Selection, Operating, & Maintaining Hydraulic Motors & Pumps

GARDEN CENTER MANAGEMENT REFERENCE MATERIALS

Instructional Materials Service
Agriscience 364 References

Catalog Number	Title
CG364	Curriculum Guide for AgSc 364
4927	Teacher's Key for AgSc 364
8633-A	Soil Sampling Methods
8640-B	Inorganic & Organic Fertilizers
8640-C	Methods/Rates/Times-Fertilizer Application
8666-B	Classifying and Grading Fruits, Vegetables, and Nuts
8666-E	Packaging and Storing Fruits and Vegetables
8714-E	Marketing Alternatives for Production Agriculture
8714-F	Forward Contracting: Cash and Futures
8714-G	Effects of Government Programs
8773	Planning, Installing, and Maintaining Irrigation Systems
8853-B	Soil Test Analysis: Interpretation and Use
8860-A	Tillage Practices: Conventional, Minimum, and No-Till
8860-B	Safe Application of Chemicals on Plants
8928-A	Safety in Horticultural Plant Production
8930-D	Propagating Plants Asexually
8931-A	Selecting and Preparing Plant Growing Media
8931-B	Using Mulches and Compost
8931-C	Sterilizing Plant Growing Media
8933-B	Selecting Structures Used in Propagating and Growing Greenhouse and Nursery Plants
8964-A	Identifying and Selecting Cultivars of Tree Fruits and Nuts
8964-B	Identifying and Selecting Cultivars of Small Fruits
8964-C	Identifying and Selecting Cultivars of Vegetables and Herbs
8965-A	Evaluating Production Enterprises
8966-A	Soil Nutrient Requirements
8968-A	Identifying Insect Pests of Tree Fruits and Nuts
8968-B	Identifying and Collecting Insect Pests of Small Fruits and Vegetables
8968-C	Controlling Insect Pests
8968-D	Identifying & Controlling Diseases of Fruits, Nuts, and Vegetables
8969-A	Identifying Weeds in Fruit, Nut, and Vegetable Production Areas
8969-B	Controlling Weeds by Biological, Chemical, and Cultural Methods in Fruit, Vegetable, and Nut Production Areas
8970-A	Principles of Seed Propagation
8970-B	Propagating Plants by Seeds
8971-A	Selecting and Planting Fruit and Nut Trees
8971-B	Nutrient Requirements and Fertilizzation of Fruits, Nuts, and Vegetables
8972-A	Pruning Fruit and Nut Trees
8972-B	Pruning Small Fruits
8972-C	Pruning and Thinning Fruits and Vegetables
8973-A	Harvesting Tree Fruits and Nuts
8973-B	Harvesting Small Fruits and Vegetables
8973-C	Marketing Fruits, Nuts, and Vegetables

Instructional Materials Service
Agriscience 362 References

Catalog Number	Title
0104	Landscaping Plant Classification
4330	Roses - Planting, Pruning, and Landscaping
4331	Texas Master Gardener Handbook
4332	Plants of the Metroplex III
4925	Teacher's Key for AgSc 362
CG362	Curriculum Guide for AgSc 362
8927-A	Recognizing Plant Characteristics Used to Classify, Name, and Identify Plants
8927-B	Classifying and Identifying Greenhouse and Nursery Plants
8928-A	Safety in Horticultural Plant Production
8929-A	Identifying, Maintaining, and Storing Tools and Equipment Used in Horticultural Plant Production
8930-A	Vegetative Plant Structures and Their Functions
8930-B	Reproductive Plant Structures and Their Functions
8930-C	Seed Germination
8930-D	Propagating Plants Asexually
8931-A	Selecting and Preparing Plant Growing Media
8931-B	Using Mulches and Compost
8931-C	Sterilizing Plant Growing Media
8931-D	Selecting and Growing Greenhouse Plants
8931-E	Selecting and Growing Nursery Plants
8931-F	Fertilizing Greenhouse and Nursery Plants
8931-G	Watering Greenhouse and Nursery Plants
8931-H	Managing Pests of Greenhouse and Nursery Plants
8932-A	Scheduling Greenhouse Potted Crops and Nursery Container Crops
8932-B	Marketing Techniques Related to Horticultural Plant Production
8933-A	Considerations for Locating and Building a Greenhouse or Nursery
8933-B	Selecting Structures Used for Propagating and Growing Greenhouse and Nursery Plants
8933-C	Selecting Equipment Required for Controlling the Environmental Conditions of Horticultural Plants
8933-D	Selecting Containers for Horticultural Crops
8933-E	Maintaining Structures and Equipment Used in Horticultural Plant Production
8934-A	Controlling the Environmental Conditions of Horticultural Plants
8934-B	Lighting and Shading Greenhouse and Nursery Plants

Horticulture References

Instructional Materials Service
Texas A&M University
F.E. Box 2588
College Station, Texas 77843
(409) 845 - 6601

Catalog Number	Title
0031A	Horticultural Occupations
0031B	Key - Horticultural Occupations
0102	Lab Exercises in Horticulture
0104	Landscape Plant Classification
0107	Propagating Horticulture Plants
0109	Greenhouse Operation and Management
0110	Ornamental and Nursery Plant Production
0113	CVAE-VEH Horticulture
0201	Basic Gardening Illustrated
0207	Lawns and Groundcovers
2358	Greenhouse Operation and Management (Transparencies)
2359	Ornamental and Nursery Plant Production (Transparencies)
2360	CVAE-VEH Horticulture (Trnsparencies)
2361-A	Horticultural Leadership/Employment/Entrepreneurship/ Careers Transparencies
2361-B	Horticulture Safety & Occupational Equipment Transparencies
2361-C	Horticulture Exploratory Skills Transparencies
4303	Applying Pesticides
4304	Fertilizing and Watering Shade and Ornamental Trees
4311	Selecting Trees for Home Planting
4312	Transplanting Shade Trees
4313	Pruning Fruit Trees
4314	Controlling Plant Growth
4316	Growing Plants Indoors
4319	Teacher's Guide - Applying Pesticides
4321	The Greenhouse Worker
4322	Samson's Tree Identifier
4324	Landscaping Illustrated
4325	Fresh Produce
4326	Vegetable Gardening Illustrated
4327	Arranging Cut Flowers
4328	Principles of Floral Design
4329	Floral Designing and Arrangement
4330	Roses - Planting and Care/Pruning/Landscaping
4331	Texas Master Gardener Handbook
4332	Plants of the Metroplex III
5312	1979 Pecan Propagation (Slides)
5313	1979 Greenhouse Management (Slides)
5315	1979 Plants for High School Greenhouse (Slides)
5316	1979 Propagation of Greenhouse Plants (Slides)
5320	1981 Greenhouse Crops (Slides)

Instructional Materials Service
Texas A&M University
F.E. Box 2588
College Station, Texas 77843
(409) 845 - 6601

Catalog Number	Title
5322	Common Vegetable and Household Insects (Slides)
5324	1981 Applying Pesticides Kit (Slides)
5327	1979 Nursery Plant Identification (Slides)
5328	1978 Air Layering (Slides)
5329	1980 Planting and Care of Hanging Baskets (Slides)
5330	1980 Planting, Protecting Existing Features, Drainage/Driveways (Slides)
5331	1980 Ground Covers and Their Uses (Slides)
5332	1980 Selecting Trees for Landscaping Use (Slides)
5334	1980 Pruning Evergreens (Slides)
5335	1980 Objectives of Pruning Deciduous Trees (Slides)
5336	1980 Mechanical Digging of Trees and Shrubs (Slides)
5337	1980 Hand Digging of Trees and Shrubs (Slides)
5338	1980 Walks, Steps, Retaining Walls - Landscaping (Slides)
5345	1980 State FFA Floriculture Contest (Slides)
5346	1980 State FFA Nursery/Landscape Contest (Slides)
5347	1984 State FFA Floriculture Contest (Slides)
5348	1984 State FFA Nursery/Landscape Contest (Slides)
5349	1987 State FFA Floriculture Contest (Slides)
5350	1987 State FFA Nursery/Landscape Contest (Slides)
5351	1990 State FFA Floriculture Contest
5352	1990 State FFA Nursery/Landscape Contest
6304	Identification of Weeds, Part I
6305	Identification of Weeds, Part II
6306	Fertilizing and Watering Shade and Ornamental Trees (Filmstrip)
6307	Garden Flowers, Annuals, Part I (Filmstrip)
6308	Garden Flowers, Annuals, Part II (Filmstrip)
6309	Foliage Plant Identification, Part I (Filmstrip)
6310	Foliage Plant Identification, Part II (Filmstrip)
6311	Foliage Plant Identification, Part III (Filmstrip)
6312	Greenhouse Uses and Design (Filmstrip)
7022	Nursery/Landscape Plant Identification (5" x 7") (Flash Cards)
8320	Ornamental Horticulture Skill Sheets, Set No. 1
8321	Ornamental Horticulture Skill Sheets, Set No. 2
9106	Apple II Plus - Horticulture Review (Computer Program)
9143	Apple II Plus - Sexual Plant Propagation (Computer Program)
9144	IBM-PC - Sexual Plant Propagation (Computer Program)
9166	Apple - Agri ID - The Leaf (Computer Program)
9167	Apple - Agri ID - The Plant (Computer Program)
9179	Apple II+/E/C - Asexual Plant Propagation (Computer Program)
9607	Basic Landscaping (VHS Video)
9608	Underground Sprinkler Systems (VHS Video)

Instructional Materials Service
Texas A&M University
F.E. Box 2588
College Station, Texas 77843
(409) 845 - 6601

Catalog Number	Title
9609	Floral Design (VHS Video)
9678	Growing Beautiful Lawns (VHS Video)
9679	Growing Beautiful Roses (VHS Video)
9687	Caring for Your Lawn (VHS Video)
9694	Wedding and Anniversary Flowers (VHS Video)
9695	Formal and Informal Flowers (VHS Video)
9696	Flower Arranging for the Home (VHS Video)
9697	Holiday Wreath and Floral Design (VHS Video)
9698	Design, Soil Preparation and Planting (VHS Video)
9699	Lawn Installation and Maintenance
9700	Pruning and Plant Care (VHS Video)
9701	Low Maintenance Landscapes (VHS Video)
9702	Selecting Fruit and Shade Trees
9747	Field Trip/The Greenhouse

****

MAVCC - Mid-America Vocational
Curriculum Consortium
Occupational Curriculum Lab
East Texas State University
Commerce, Texas 75428
(214) 886 - 5624

301701	Landscape Management Field Operator Teacher's Guide
301702	Landscape Management Field Operator Student Manual
301703	Landscape Management Field Operator Transparency Set
301801	Landscape Management Field Specialist Teacher's Guide
301802	Landscape Management Field Specialist Student Manual
301803	Landscape Management Field Specialist Transparency Set
301901	Landscape Management Field Supervisor Teacher's Guide
301902	Landscape Management Field Supervisor Student Manual
301903	Landscape Management Field Supervisor Transparency Set

****

Curriculum Publications Clearinghouse
Western Illinois University
Harrabin Hall 46
Macomb, Illinois 61455

108	Competency Based Curriculum Guide in High School Horticulture
177	Competency Based Horticulture
342b	Education for Employment Task Analysis for Agricultural Occupations - Horticulture
326b	Education for Employment Task Lists - Horticulture Cluster

V-Tech Catalogs

V-97	Crop Production: Vegetable Grower
V-154	Floriculture Worker, Retail Flower Shop Salesperson, and Floral Designer
V-92	Garden Center Salesperson, Garden Center Worker, Landscape Worker, and Landscape Designer
V-25	Gardening/Groundskeeping
V-40	Nursery Production
V-156	Ornamental Horticulture Production Occupations
V-56	Turfgrass Maintenance Workers
V-96	Crop Production: Orchardist

****

Hobar Publications
1234 Tiller Lane
St. Paul, Minnesota 55112
(612) 633 - 3170

Computer Programs

AP2 - AG70 II+,IIe,IIc Horticulture and Related Review
AP2 - AG70 - 3.5 IIGS
IBM - AG70 IBM PC MS-DOS
IBM - AG70 - 3.5 IBM PC
TRS - AG70 TRS 80 III,4
MAC - AG70

AP2 - AG73 II+,IIe,IIc Introductory Horticulture Review I
AP2 - AG73 - 3.5 IIGS
IBM - AG73 IBM PC MS-DOS
IBM - AG73 - 3.5 IBM PC
TRS - AG73 TRS 80 III,4
MAC - AG73

AP2 - AG74 II+,IIe,IIc Introductory Horticulture Review II
AP2 - AG74 - 3.5 IIGS
IBM - AG74 IBM PC MS-DOS
IBM - AG74 - 3.5 IBM PC
TRS - AG74 TRS 80 III,4
MAC - AG74

AP2 - AG75 II+,IIe,IIc Introductory Horticulture Review III
AP2 - AG75 - 3.5 IIGS
IBM - AG75 IBM PC MS-DOS
IBM - AG75 - 3.5 IBM PC
TRS - AG75 TRS 80 III,4
MAC - AG75

AP2 - AG73 II+,IIe,IIc Plant Nutrients, Fertilizers, and Related Review
AP2 - AG73 - 3.5 IIGS
IBM - AG73 IBM PC MS-DOS
IBM - AG73 - 3.5 IBM PC
TRS - AG73 TRS 80 III,4
MAC - AG73

AP2 - AG73 II+,IIe,IIc Soil Evaluation, Fertility, and Related Review
AP2 - AG73 - 3.5 IIGS
IBM - AG73 IBM PC MS-DOS
IBM - AG73 - 3.5 IBM PC
TRS - AG73 TRS 80 III,4
MAC - AG73

Hobar Publications
1234 Tiller Lane
St. Paul, Minnesota 55112
(612) 633 - 3170

55472 Apple IIe
24533 Apple IIc
35144 IBM PC
27258 Commodore 64

Ortho's Computerized Gardening

VHS Videos

15400767	Strawberry Production: Introduction and Growing Technology
15400768	Strawberry Production: Growing Technology from Field to Market
15400865	Both of the Above
15400771	Tomato Production: Pest Control
15400772	Tomato Production: Harvesting and Handling
15400866	Both of the Above
H-75032	Transplanting a Tomato
H-VT1029	Roses
H-VT1031	Ground Covers
H-VT1027	Lawn Care
H-75114	Master Gardener Program
H-VT1026	Vegetable Gardening
H-VT1032	Basic Gardening
H-75374	Grafting Apple Trees
H-VT1106	Pruning
H-VT1081	Indoor Plants
H-VT1028	Annuals and Hanging Baskets
H-FA-1002	Flower Arranging: Advanced Centerpieces, One-Sided and Layered "Mass" Designs
H-FA-1005	Flower Arranging: Basic Christmas Designs - Nosegays and Centerpieces
H-FA-1006	Flower Arranging: Christmas Designs - Wreaths, Wall Hangings, and Novelty Arrangement
H-FA-1004	Flower Arranging: Miniatures, Stylized (Sculptured) and Oriental Designs
H-FA-1001	Flower Arranging: Nosegays, One-Sided and Centerpiece Designs
H-FA-1003	Wall Hangings

Texts and Other References

0382-6	Ball RedBook
029538-8	American Style Flower Arranging
043935-5	Arboriculture
394809-9	Horticulture: Principles and Practical Application
7887-7	Lab Manual for Turfgrass Management
521667-2	Landscape Design
5771-3	Practical Horticulture
G-95201	Greenhouse Gardening

Hobar Publications
1234 Tiller Lane
St. Paul, Minnesota 55112
(612) 633 - 3170

G-95202	Greenhouse Gardening - Teacher's Guide
9512	Mathematics for Horticulture
9513	Mathematics for Horticulture - Teacher's Guide
711-722	Horticultural Competency Worksheets
978	Competency Based Horticulture
725-736	Nursery Worksheets
701-708	Horticultural Tool Maintenance Worksheets
UPC 05506	All About Vegetables
UPC 05255	All About Annuals
UPC 05273	All About Perennials
UPC 05335	All About Roses
UPC 05285	All About Pruning
UPC 05302	All About Lawns
UPC 05535	All About Growing Fruits and Berries
UPC 05223	All About Houseplants
UPC 05320	How to Select and Care for Shrubs and Hedges
UPC 05315	All About Landscaping
UPC 05280	All About Ground Covers
UPC 05258	All About Bulbs
UPC 05933	How to Select, Use, and Maintain Garden Equipment

****

Teaching Aids Inc.
P.O. Box 1798
Costa Mesa, California 92628-7098

R-VT1039	Flower Arranging Made Simple, Part 1: Basics of Arranging (VHS Video)
R-VT1040	Flower Arranging Made Simple, Part 2: Materials Selection and Arrangement Styles (VHS Video)

POULTRY PRODUCTS MANAGEMENT REFERENCE MATERIALS

Poultry Science References

Instructional Materials Service
Texas A&M University
F.E. Box 2588
College Station, Texas 77843
(409) 845 - 6296

Catalog Number	Title
0040A	Poultry Occupations
0040B	Key - Poultry Occupations
0413	Regulations Governing the Voluntary Grading of Poultry/Rabbit Products (USDA)
0414	USDA Poultry Grading Manual with Supplement
0415	Standards of Quality for Eggs Chart
0416	Air Cell Gauge
0417	USDA Egg Grading Manual
0418	Poultry Science Manual for National FFA Contests
4001	Key - Poultry Products Evaluation Handbook
4003	Poultry Science and Production
4025	Caring for the Laying Flock
4030	Poultry Products Evaluation Handbook
4040	Merck Veterinary Manual
5010	1984 Interior Quality of Eggs (Slides)
5021	1984 Breeds of Poultry (Slides)
5035	1985 Chicken Broiler Processing (Slides)
5036A	1985 Judging Production Pullets and Hens (Slides)
5036B	1985 Grading Ready-to-Cook Poultry (Slides)
5036C	1985 Grading Egg Shells - Interior and Exterior (Slides)
5037	1985 New Turkey Products (Slides)
5056	1984 Types of Egg Shell Conditions (Slides)
5064	1978 Proper Handling of Birds (Poultry) (Slides)
5120	1986 Poultry Carcass Parts Identification (Slides)
5121	1986 Breaded Poultry Meat Patties (Slides)
5122	1986 Judging Carton of Eggs (Slides)
5137	1987 Whole Fryer: USDA Standards of Quality (Slides)
5138	1987 Fryer Parts: USDA Standards of Quality (Slides)
5139	1987 Egg Evaluation (Slides)
5140	1988 Evaluation of Chicken Patties (Slides)
9572	Introduction to Poultry Judging (VHS Video)
9573	Judging Pullets and Hens (VHS Video)
9574	Evaluating Ready-to-Cook Poultry (VHS Video)
9575	Egg Grading (VHS Video)
9576	Practice Poultry Judging I (VHS Video)
9577	Practice Poultry Judging II (VHS Video)

****

Curriculum Publications Clearinghouse
Western Illinois University
Harrabin Hall 46
Macomb, Illinois 61455

V-131 V-TECS Catalog - Poultry Farmer

****

Hobar Publications
1234 Tiller Lane
St. Paul, Minnesota 55112
(612) 633 - 3170

Computer Programs

AP2 - AG120 II+,IIe,IIc	Livestock, Poultry and Nutrition Related
AP2 - AG120 - 3.5 IIGS	Review
IBM - AG120 IBM PC MS-DOS	
IBM - AG120 - 3.5 IBM PC	
TRS - AG120 TRS 80 III,4	
MAC - AG120	
AP2 - AG119 II+,IIe,IIc	Poultry and Related Review
AP2 - AG119 - 3.5 IIGS	
IBM - AG119 IBM PC MS-DOS	
IBM - AG119 - 3.5 IBM PC	
TRS - AG119 TRS 80 III,4	
MAC - AG119	

Instructional Materials Service
Agriscience 332 References

Catalog Number	Title
CG332	Curriculum for AgSc 332
4921	Teacher's Key for AgSc 332
K332	Teacher's Key - AgSc 332 Topic Tests
T332	Topic Tests for AgSc 332
8816	The Importance of Livestock Management
8817-B	Anatomy and Physiology of Other Animal Body Systems - the Nervous, Urinary, and Endocrine Systems
8817-C	Animal Behavior
8818-A	Artificial Insemination
8818-B	Embryo Transfer
8818-C	Pregnancy Diagnosis (Palpation)
8818-D	Care of Livestock at Parturition
8820-A	Evaluating and Grading Carcasses and Wholesale Cuts
8821-B	Formulating Rations for Domestic Animals
8821-C	Quality of Commercially Prepared Feeds
8821-D	Feeding Practices of Beef, Swine, and Sheep
8822-A	Role of Bacteria, Fungi, Viruses, and Nutrition in Causing Animal Diseases
8822-B	Causes, Symptoms, Prevention and Treatment of Various Animal Diseases
8822-C	External and Internal Parasites of Poultry
8822-D	External and Internal Parasites of Livestock
8822-E	Use of Pharmaceuticals in Vaccination and Immunization
8823-A	Planning Livestock Facilities
8823-B	Animal Welfare and Animal Rights
8823-C	Research in Animal and Food Science Technology
8332	Selection of Rabbits
8391	Animal Growth and Development
8399	Selecting Beef Cattle
8400	Selecting Swine
8401	Selecting Sheep
8402	Selecting Dairy Cattle
8403	Selecting Poultry
8405	Animal Reproduction
8406	Animal Genetics
8407	Methods of Animal Breeding
8643	Evaluation and Selection of Goats
8644-A	Live Animal Evaluation and Grading
8644-B	Poultry Carcass Evaluation
8645-A	Safe Handling and Restraining of Animals
8645-B	Surgical Skills - Castration
8645-C	Surgical Skills - Dehorning
8645-D	Surgical Skills - Docking
8645-E	Performing Common Immunization Skills
8645-F	Methods of Identifying Livestock
8645-G	Livestock Transportation
8646-A	The Circulatory System
8646-B	The Respiratory System

Instructional Materials Service
Agriscience 332 References
Continued

Catalog Number	Title
8646-C	The Skeletal System
8646-D	The Muscular System
8646-E	The Digestive System
8647-A	Feed Nutrients
8647-B	Classes of Feed
8647-C	Feed Additives
8832-A	History of Livestock Domestication
8832-B	Importance of Livestock Domestication
8832-C	Livestock Breeds of Economic Importance
8833-A	External Anatomies of Domesticated Animals
8833-B	Skeletal Systems of Domesticated Animals
8833-C	Digestive Systems of Domesticated Animals
8833-D	Circulatory Systems of Domesticated Animals
8833-F	Respiratory Systems of Domesticated Animals
8833-G	Nervous Systems of Domesticated Animals
8833-H	Endocrine Systems of Domesticated Animals
8833-I	Epithelial, Connective, and Muscle Tissues of Domestic Animals
8834-A	Early Mendelian Theories of Genetics
8834-B	DNA, RNA, and Protein Synthesis
8834-C	Animal Cell Division

Instructional Materials Service
Agriscience 241 References

Catalog Number	Title
CG241	Curriculum Guide for AgSc 241
4911	Teacher's Key for AgSc 241
8010	Meat Identification Charts (Beef, Pork, and Lamb)
8408	The Importance of Food Science Technology
8409	Trends in Food Production
8644-B	Poultry Carcass Evaluation
8820-A	Evaluating and Grading Carcasses and Wholesale Cuts
8823-C	Research in Animal and Food Science Technology
8653-A	Trends in World Populations
8653-B	Trends in Supply and Demand of Food Products
8654	Nutritive Value of Food Groups
8655-A	Inspection Standards for the Food Industry
8655-B	Control of Insects and Rodents in the Food Industry
8655-C	Chemicals for Sanitation in the Food Industry
8656	Preparing Livestock Carcasses for Market
8657	USDA Inspection of Beef, Pork, and Lamb
8658	Preparation of Processed Meats
8659-A	The Poultry Slaughtering Process
8659-B	Retail Cuts and Value Added Products of Poultry
8660-A	Classes and Qualities of Fish and Seafood
8660-B	Preparing Fish for Food
8660-C	Processing Seafood and Fabricating Specialty Fish Products
8661-A	Preserving Red Meat, Poultry, and Fish
8661-B	Packaging and Labeling Red Meat, Fish, and Poultry
8661-C	Refrigerating & Freezing Red Meat, Fish, and Poultry
8662	Identifying By-Products of the Meat Industry
8663-A	Handling and Storing of Eggs
8663-B	Grading Eggs
8663-C	Egg Marketing Process
8664-A	Preparing Milk for Processing
8664-B	Processing Milk and Dairy Products
8665-A	Processing Cultured Milk Products
8665-C	Processing Frozen Desserts from Milk
8665-D	Preparing Butter and Concentrated/Dried Milk Products
8666-A	Transporting, Receiving and Storing Fruits, Vegetables and Nuts
8666-B	Classifying and Grading Fruits, Vegetables, and Nuts
8666-C	Trimming, Washing, Waxing, Peeling, and Blanching Fruits and Vegetables
8666-D	Mechanical and Chemical Preservation of Fruits and Vegetables
8666-E	Packaging and Storing Fruits and Vegetables
8667-A	The Food Marketing Process
8667-B	Pricing, Labeling and Displaying Food Products
8667-C	Maintaining Stock and Quality Control of Food Products
8667-D	Convenience Food in Consumer Preference
8714-A	Purpose and Importance of Marketing
8714-D	Types of Agricultural Markets

RETAIL FLORIST MANAGEMENT REFERENCE MATERIALS

Instructional Materials Service
Agriscience 362 References

Catalog Number	Title
0104	Landscaping Plant Classification
4330	Roses - Planting, Pruning, and Landscaping
4331	Texas Master Gardener Handbook
4332	Plants of the Metroplex III
4925	Teacher's Key for AgSc 362
CG362	Curriculum Guide for AgSc 362
8927-A	Recognizing Plant Characteristics Used to Classify, Name, and Identify Plants
8927-B	Classifying and Identifying Greenhouse and Nursery Plants
8928-A	Safety in Horticultural Plant Production
8929-A	Identifying, Maintaining, and Storing Tools and Equipment Used in Horticultural Plant Production
8930-A	Vegetative Plant Structures and Their Functions
8930-B	Reproductive Plant Structures and Their Functions
8930-C	Seed Germination
8930-D	Propagating Plants Asexually
8931-A	Selecting and Preparing Plant Growing Media
8931-B	Using Mulches and Compost
8931-C	Sterilizing Plant Growing Media
8931-D	Selecting and Growing Greenhouse Plants
8931-E	Selecting and Growing Nursery Plants
8931-F	Fertilizing Greenhouse and Nursery Plants
8931-G	Watering Greenhouse and Nursery Plants
8931-H	Managing Pests of Greenhouse and Nursery Plants
8932-A	Scheduling Greenhouse Potted Crops and Nursery Container Crops
8932-B	Marketing Techniques Related to Horticultural Plant Production
8933-A	Considerations for Locating and Building a Greenhouse or Nursery
8933-B	Selecting Structures Used for Propagating and Growing Greenhouse and Nursery Plants
8933-C	Selecting Equipment Required for Controlling the Environmental Conditions of Horticultural Plants
8933-D	Selecting Containers for Horticultural Crops
8933-E	Maintaining Structures and Equipment Used in Horticultural Plant Production
8934-A	Controlling the Environmental Conditions of Horticultural Plants
8934-B	Lighting and Shading Greenhouse and Nursery Plants

Instructional Materials Service
Agriscience 363 References

Catalog Number	Title
4327	Arranging Cut Flowers
4328	Principles of Floral Design
4329	Floral Designing and Arrangement
4926	Teacher's Key for AgSc 363
CG363	Curriculum Guide for AgSc 363
8943-A	Identifying Flowers and Foliage Used in Floral Designs
8943-B	Identifying Tropical Foliage Plants and Blooming Plants Used in Interior Landscape Development
8944-A	Techniques of Increasing Keeping Qualities of Flowers/Plants
8945-A	History of Floral Design
8946-A	Floral Design Principles
8946-B	Color Harmony in Floral and Interior Landscape Design
8947-A	Material Selection and Design Mechanics for Arranging Cut Flowers
8947-B	Preparing Symmetrical Arrangements with Fresh Cut Flowers
8947-C	Preparing Asymmetrical Arrangements with Fresh Cut Flowers
8947-D	Preparing Round Arrangements with Fresh Cut Flowers
8948-A	Material Selection and Design Mechanics for Arranging Dried and Everlasting Flowers
8948-B	Preparing Two-Dimensional Pressed Flower Pictures - Dry Flowers
8948-C	Preparing Three-Dimensional Arrangements With Silk and Dry Flowers
8949-A	Selecting Flowers, Foliage Materials, and Design Principles for Preparing Corsages and Boutonnieres
8949-B	Wiring Flowers and Foliage
8949-C	Constructing Bows
8949-D	Preparing Football Chrysanthemum Corsages
8949-E	Constructing Boutonnieres and Corsages
8950-A	Floral Designs for Holidays, Banquets, and Other Special Occasions
8951-A	Safety in Floral Design and Interior Landscaping
8953-A	Managing the Interior Landscape Environment
8953-B	Watering and Fertilizing Interior Plants
8953-C	Managing Pests and Diseases of Interior Plants
8953-D	Pruning Interior Landscape Plants
8954-A	Functional Uses of Interior Plants and Interior Landscape Design Principles
8954-B	Using Line, Form, Texture, and Color in Interior Landscape Development
8955-A	Designing Interior Landscapes for Commercial Mall Sites and for Small Commercial Clients
8956-A	Pricing Interior Landscaping Services

Horticulture References

Instructional Materials Service
Texas A&M University
F.E. Box 2588
College Station, Texas 77843
(409) 845 - 6601

Catalog Number	Title
0031A	Horticultural Occupations
0031B	Key - Horticultural Occupations
0102	Lab Exercises in Horticulture
0104	Landscape Plant Classification
0107	Propagating Horticulture Plants
0109	Greenhouse Operation and Management
0110	Ornamental and Nursery Plant Production
0113	CVAE-VEH Horticulture
0201	Basic Gardening Illustrated
0207	Lawns and Groundcovers
2358	Greenhouse Operation and Management (Transparencies)
2359	Ornamental and Nursery Plant Production (Transparencies)
2360	CVAE-VEH Horticulture (Transparencies)
2361-A	Horticultural Leadership/Employment/Entrepreneurship/ Careers Transparencies
2361-B	Horticulture Safety & Occupational Equipment Transparencies
2361-C	Horticulture Exploratory Skills Transparencies
4303	Applying Pesticides
4304	Fertilizing and Watering Shade and Ornamental Trees
4311	Selecting Trees for Home Planting
4312	Transplanting Shade Trees
4313	Pruning Fruit Trees
4314	Controlling Plant Growth
4316	Growing Plants Indoors
4319	Teacher's Guide - Applying Pesticides
4321	The Greenhouse Worker
4322	Samson's Tree Identifier
4324	Landscaping Illustrated
4325	Fresh Produce
4326	Vegetable Gardening Illustrated
4327	Arranging Cut Flowers
4328	Principles of Floral Design
4329	Floral Designing and Arrangement
4330	Roses - Planting and Care/Pruning/Landscaping
4331	Texas Master Gardener Handbook
4332	Plants of the Metroplex III
5312	1979 Pecan Propagation (Slides)
5313	1979 Greenhouse Management (Slides)
5315	1979 Plants for High School Greenhouse (Slides)
5316	1979 Propagation of Greenhouse Plants (Slides)
5320	1981 Greenhouse Crops (Slides)

Instructional Materials Service
Texas A&M University
F.E. Box 2588
College Station, Texas 77843
(409) 845 - 6601

Catalog Number	Title
5322	Common Vegetable and Household Insects (Slides)
5324	1981 Applying Pesticides Kit (Slides)
5327	1979 Nursery Plant Identification (Slides)
5328	1978 Air Layering (Slides)
5329	1980 Planting and Care of Hanging Baskets (Slides)
5330	1980 Planting, Protecting Existing Features, Drainage/Driveways (Slides)
5331	1980 Ground Covers and Their Uses (Slides)
5332	1980 Selecting Trees for Landscaping Use (Slides)
5334	1980 Pruning Evergreens (Slides)
5335	1980 Objectives of Pruning Deciduous Trees (Slides)
5336	1980 Mechanical Digging of Trees and Shrubs (Slides)
5337	1980 Hand Digging of Trees and Shrubs (Slides)
5338	1980 Walks, Steps, Retaining Walls - Landscaping (Slides)
5345	1980 State FFA Floriculture Contest (Slides)
5346	1980 State FFA Nursery/Landscape Contest (Slides)
5347	1984 State FFA Floriculture Contest (Slides)
5348	1984 State FFA Nursery/Landscape Contest (Slides)
5349	1987 State FFA Floriculture Contest (Slides)
5350	1987 State FFA Nursery/Landscape Contest (Slides)
5351	1990 State FFA Floriculture Contest
5352	1990 State FFA Nursery/Landscape Contest
6304	Identification of Weeds, Part I
6305	Identification of Weeds, Part II
6306	Fertilizing and Watering Shade and Ornamental Trees (Filmstrip)
6307	Garden Flowers, Annuals, Part I (Filmstrip)
6308	Garden Flowers, Annuals, Part II (Filmstrip)
6309	Foliage Plant Identification, Part I (Filmstrip)
6310	Foliage Plant Identification, Part II (Filmstrip)
6311	Foliage Plant Identification, Part III (Filmstrip)
6312	Greenhouse Uses and Design (Filmstrip)
7022	Nursery/Landscape Plant Identification (5" x 7") (Flash Cards)
8320	Ornamental Horticulture Skill Sheets, Set No. 1
8321	Ornamental Horticulture Skill Sheets, Set No. 2
9106	Apple II Plus - Horticulture Review (Computer Program)
9143	Apple II Plus - Sexual Plant Propagation (Computer Program)
9144	IBM-PC - Sexual Plant Propagation (Computer Program)
9166	Apple - Agri ID - The Leaf (Computer Program)
9167	Apple - Agri ID - The Plant (Computer Program)
9179	Apple II+/E/C - Asexual Plant Propagation (Computer Program)
9607	Basic Landscaping (VHS Video)
9608	Underground Sprinkler Systems (VHS Video)

Instructional Materials Service
Texas A&M University
F.E. Box 2588
College Station, Texas 77843
(409) 845 - 6601

Catalog Number	Title
9609	Floral Design (VHS Video)
9678	Growing Beautiful Lawns (VHS Video)
9679	Growing Beautiful Roses (VHS Video)
9687	Caring for Your Lawn (VHS Video)
9694	Wedding and Anniversary Flowers (VHS Video)
9695	Formal and Informal Flowers (VHS Video)
9696	Flower Arranging for the Home (VHS Video)
9697	Holiday Wreath and Floral Design (VHS Video)
9698	Design, Soil Preparation and Planting (VHS Video)
9699	Lawn Installation and Maintenance
9700	Pruning and Plant Care (VHS Video)
9701	Low Maintenance Landscapes (VHS Video)
9702	Selecting Fruit and Shade Trees
9747	Field Trip/The Greenhouse

****

MAVCC - Mid-America Vocational
Curriculum Consortium
Occupational Curriculum Lab
East Texas State University
Commerce, Texas 75428
(214) 886 - 5624

301701	Landscape Management Field Operator Teacher's Guide
301702	Landscape Management Field Operator Student Manual
301703	Landscape Management Field Operator Transparency Set
301801	Landscape Management Field Specialist Teacher's Guide
301802	Landscape Management Field Specialist Student Manual
301803	Landscape Management Field Specialist Transparency Set
301901	Landscape Management Field Supervisor Teacher's Guide
301902	Landscape Management Field Supervisor Student Manual
301903	Landscape Management Field Supervisor Transparency Set

****

Curriculum Publications Clearinghouse
Western Illinois University
Harrabin Hall 46
Macomb, Illinois 61455

108	Competency Based Curriculum Guide in High School Horticulture
177	Competency Based Horticulture
342b	Education for Employment Task Analysis for Agricultural Occupations - Horticulture
326b	Education for Employment Task Lists - Horticulture Cluster

V-Tech Catalogs

V-97	Crop Production: Vegetable Grower
V-154	Floriculture Worker, Retail Flower Shop Salesperson, and Floral Designer
V-92	Garden Center Salesperson, Garden Center Worker, Landscape Worker, and Landscape Designer
V-25	Gardening/Groundskeeping
V-40	Nursery Production
V-156	Ornamental Horticulture Production Occupations
V-56	Turfgrass Maintenance Workers
V-96	Crop Production: Orchardist

****

Hobar Publications
1234 Tiller Lane
St. Paul, Minnesota 55112
(612) 633 - 3170

Computer Programs

AP2 - AG70 II+,IIe,IIc Horticulture and Related Review
AP2 - AG70 - 3.5 IIGS
IBM - AG70 IBM PC MS-DOS
IBM - AG70 - 3.5 IBM PC
TRS - AG70 TRS 80 III,4
MAC - AG70

AP2 - AG73 II+,IIe,IIc Introductory Horticulture Review I
AP2 - AG73 - 3.5 IIGS
IBM - AG73 IBM PC MS-DOS
IBM - AG73 - 3.5 IBM PC
TRS - AG73 TRS 80 III,4
MAC - AG73

AP2 - AG74 II+,IIe,IIc Introductory Horticulture Review II
AP2 - AG74 - 3.5 IIGS
IBM - AG74 IBM PC MS-DOS
IBM - AG74 - 3.5 IBM PC
TRS - AG74 TRS 80 III,4
MAC - AG74

AP2 - AG75 II+,IIe,IIc Introductory Horticulture Review III
AP2 - AG75 - 3.5 IIGS
IBM - AG75 IBM PC MS-DOS
IBM - AG75 - 3.5 IBM PC
TRS - AG75 TRS 80 III,4
MAC - AG75

AP2 - AG73 II+,IIe,IIc Plant Nutrients, Fertilizers, and Related Review
AP2 - AG73 - 3.5 IIGS
IBM - AG73 IBM PC MS-DOS
IBM - AG73 - 3.5 IBM PC
TRS - AG73 TRS 80 III,4
MAC - AG73

AP2 - AG73 II+,IIe,IIc Soil Evaluation, Fertility, and Related Review
AP2 - AG73 - 3.5 IIGS
IBM - AG73 IBM PC MS-DOS
IBM - AG73 - 3.5 IBM PC
TRS - AG73 TRS 80 III,4
MAC - AG73

Hobar Publications
1234 Tiller Lane
St. Paul, Minnesota 55112
(612) 633 - 3170

55472 Apple IIe	Ortho's Computerized Gardening
24533 Apple IIc	
35144 IBM PC	
27258 Commodore 64	

VHS Videos

15400767	Strawberry Production: Introduction and Growing Technology
15400768	Strawberry Production: Growing Technology from Field to Market
15400865	Both of the Above
15400771	Tomato Production: Pest Control
15400772	Tomato Production: Harvesting and Handling
15400866	Both of the Above
H-75032	Transplanting a Tomato
H-VT1029	Roses
H-VT1031	Ground Covers
H-VT1027	Lawn Care
H-75114	Master Gardener Program
H-VT1026	Vegetable Gardening
H-VT1032	Basic Gardening
H-75374	Grafting Apple Trees
H-VT1106	Pruning
H-VT1081	Indoor Plants
H-VT1028	Annuals and Hanging Baskets
H-FA-1002	Flower Arranging: Advanced Centerpieces, One-Sided and Layered "Mass" Designs
H-FA-1005	Flower Arranging: Basic Christmas Designs - Nosegays and Centerpieces
H-FA-1006	Flower Arranging: Christmas Designs - Wreaths, Wall Hangings, and Novelty Arrangement
H-FA-1004	Flower Arranging: Miniatures, Stylized (Sculptured) and Oriental Designs
H-FA-1001	Flower Arranging: Nosegays, One-Sided and Centerpiece Designs
H-FA-1003	Wall Hangings

Texts and Other References

0382-6	Ball RedBook
029538-8	American Style Flower Arranging
043935-5	Arboriculture
394809-9	Horticulture: Principles and Practical Application
7887-7	Lab Manual for Turfgrass Management
521667-2	Landscape Design
5771-3	Practical Horticulture
G-95201	Greenhouse Gardening

Hobar Publications
1234 Tiller Lane
St. Paul, Minnesota 55112
(612) 633 - 3170

G-95202	Greenhouse Gardening - Teacher's Guide
9512	Mathematics for Horticulture
9513	Mathematics for Horticulture - Teacher's Guide
711-722	Horticultural Competency Worksheets
978	Competency Based Horticulture
725-736	Nursery Worksheets
701-708	Horticultural Tool Maintenance Worksheets
UPC 05506	All About Vegetables
UPC 05255	All About Annuals
UPC 05273	All About Perennials
UPC 05335	All About Roses
UPC 05285	All About Pruning
UPC 05302	All About Lawns
UPC 05535	All About Growing Fruits and Berries
UPC 05223	All About Houseplants
UPC 05320	How to Select and Care for Shrubs and Hedges
UPC 05315	All About Landscaping
UPC 05280	All About Ground Covers
UPC 05258	All About Bulbs
UPC 05933	How to Select, Use, and Maintain Garden Equipment

****

Teaching Aids Inc.
P.O. Box 1798
Costa Mesa, California 92628-7098

R-VT1039	Flower Arranging Made Simple, Part 1: Basics of Arranging (VHS Video)
R-VT1040	Flower Arranging Made Simple, Part 2: Materials Selection and Arrangement Styles (VHS Video)

BASIC CERTIFICATE PROGRAMS

DAIRY PRODUCTS MANAGEMENT
BASIC CERTIFICATE PROGRAM

Agriculture 1101
The Agricultural Industry

Course Objective

Upon the successful completion of this course, the student will:

1. Be able to make an intelligent decision in the choice of an agricultural career.
2. Be familiar with the different career opportunities in agriculture.
3. Be familiar with the importance of agriculture to the global economy.

Outline

I. Importance of Agriculture to the State, Nation, and World

II. Career Opportunities in Animal Science

III. Career Opportunities in Natural Resources

IV. Career Opportunities in Agribusiness

V. Career Opportunities in Plant Science/Horticulture

VI. Career Opportunities in Government

VII. Scientific Agricultural Careers

VIII. Career Opportunities in Agricultural Mechanics

IX. The New Fields of Agriculture

X. Agriculture in the World Economy

XI. Agriculture's Future

Agriculture 1313
Agriculture Mechanics

Course Objectives

Upon successful completion of this course the student will be able to:

1. Develop terminology useful for discussing farm machinery.
2. Design machinery appropriate for farm enterprises.
3. Repair machinery that is environmentally sound.
4. Quantify specifications and read blueprints of machinery.
5. Demonstrate knowledge and technique in choosing materials for a particular farm implement.
6. Demonstrate a working knowledge of wiring in farm machinery.
7. Demonstrate and identify tools used in farm machinery.
8. Quantify, develop, and arrange for contract negotiation as well as financing for farm machinery.
9. Develop a sense of safety values associated with farm machinery.

Course Outline

I. Introduction

- A. Modern Farm Tractors
- B. Diesel Engines
- C. Tractor Fuels, Oils, and Greases

II. Preventive Maintenance

- A. The Meaning of Preventive Maintenance
- B. The Steps in General Maintenance
- C. Maintaining the Lubrication System
- D. Maintaining the Air Cleaner and Crankcase Breather
- E. Maintaining the Cooling System
- F. Maintaining the Fuel System
- G. Maintaining the Electrical System
- H. Maintaining the Hydraulic System
- I. Maintaining the Power Transmission System
- J. Maintaining the Chassis

III. Operation, Repair, and Storage

A. Operating the Tractor
B. Operating the Tractor in Cold Weather
C. Operating the Tractor Safely
D. Repairing the Engine
E. Trouble-Shooting Guide
F. Storing Equipment
G. Preparing for Use after Storage

IV. Small Engines

A. Maintenance

Agriculture 1414
General Agronomy

Course Objectives

Successful completion of this course will allow the student to be able to:

1. Identify an area, a national and a global perspective of soil use.
2. Quantify soil types, phases, and classifications.
3. Develop plans using utilization of different soil types.
4. Describe the role of climate on soils.
5. Demonstrate knowledge of fertilization of soils.
6. Acquire working knowledge of plants that will grow on certain soils.
7. Develop plans for soil conservation.
8. Understand and acquire knowledge needed for judging soils.
9. Understand and be able to comprehend soil profile maps, topography maps, and water run off maps.
10. Be able to identify soil by feeling texture.
11. Understand methodology of soils for building materials.
12. Demonstrate knowledge of envircnmental impact of soils on man's economy.
13. Comprehend the impact of soils on a nation's economy.

Course Outline

I. Soil Science and Use

- A. Formation
- B. Physical Characteristics
- C. Chemical Characteristics
- D. Soil Profile
- E. Soil Maps
- F. Land's Demand for Soil

II. Soils, Nutrition, and Plant Growth

- A. Soils and Plan Growth
- B. How Plants Absorb Nutrients
- C. Plant Nutrients
- D. Mineral Deficiency and Toxiology
- E. Fertilizer as a Pollutant

III. Liming

A. Why Soils Become Acid
B. Meaning of Soil pH
C. What Lime Does to Soil
D. Kinds of Lime
E. Lime Requirement
F. Applying Lime
G. Lime Conversion Factors

IV. Fertilizing

A. What is Fertilizer
B. Types of Fertilizer
C. Secondary Plant Nutrients
D. Micronutrients
E. Soil Testing
F. Fundamentals of Fertilizer Application
G. Calculation of Fertilizer Cost

V. Using Organic Residues

A. Using Crop Residues
B. Using Animal Residues
C. Using Sewage Residues
D. Using Septage
E. Using Compost
F. Using Wood Wastes
G. Using Food Processing Wastes
H. Using Peat

VI. Tillage Practices

A. Purposes of Tillage
B. Soil Conditions
C. Soil Compaction
D. Conservation Tillage
E. Summer Fallow
F. Double Cropping
G. Control of Tillage Pans
H. Control of Surface Crusts

VII. Soil and Water Conservation

A. Sources of Soil Lost
B. Cropping Systems to Reduce Soil Lost
C. Minimum Tillage
D. Terracing
E. Contour Tillage
F. Soil Conservation Service
G. Non-point Source Pollutants
H. Conservation Irrigation
I. Desertification

VIII. Drainage

A. Water Tables
B. Soil Surveys
C. Water Movement in Soil
D. Soil Aeration Drainage and Plant Growth
E. Artificial Drainage
F. Drainage System Selection
G. Tile Drainage
H. Tube Drainage
I. Bed Drainage
J. Ditch Drainage
K. Sump Pump Drainage
L. Vertical Drainage

IX. Irrigation

A. Importance of Water
B. When to Irrigate
C. Selection of Irrigation System
D. Irrigation Methods
E. Fertilizer Application through Irrigation
F. Irrigation Tail Water Management

X. Reclaiming Saline and Sodic Soils

A. Classification of Saline and Sodic Soils
B. Effect of Salt on Plant Growth
C. Selecting Plants that are Saline and Salt Tolerant
D. Water Quality and Saline Soils
E. Reclaiming Prevention and Control Saline Soils
F. Saline Seeps

XI. Judging Soils

A. Why Judge Soils
B. Conducting Land Judging
C. Selecting Site
D. Land Judging Scorecard
E. Soil and Land Characteristics
F. Recommended Land Treatments

XII. Pastures, Soil Water, and Fertility Management

A. Forage Grasses
B. Forage Legumes
C. Soil for Seeding
D. Fertility Management
E. Grazing Management
F. Renovating Pastures
G. Irrigating Pastures

XIII. Rangelands

A. Range Management
B. Range Improvement Practices
C. Range Management Planning

XIV. Field Crops: Soil, Water, and Fertility Management

A. Crop Production
B. Agronomic Classification of Plants

XV. Vegetable Gardens: Soil, Water, and Fertility Management

A. Tillage
B. Soil Testing
C. Agronomic Practices

XVI. Turf and Ornamental Plants: Soil, Water, and Fertility Management

A. Turf Grasses
B. Ornamental Plants

XVII. Greenhouses and Nurseries: Soil, Water, and Fertility Management

A. Preparing Soils for Greenhouses
B. Greenhouse Mechanics

XVIII. Orchards: Soil, Water, and Fertility Management

A. Preparing Soils for Orchards
B. Orchard Management

XIX. Forests: Soil, Water, and Fertility Management

A. Preparing Soils for Forests
B. Tree Management

XX. Vegetating Disturbed Areas: Soil, Water, and Fertility Management

A. Sequence to Establishing Vegetation
B. Vegetating Areas Disturbed by Surface Mining
C. Vegetating Areas Disturbed by Road Construction and Urbanization

Agriculture 1484
Introduction to Animal Science

Course Objectives

Successful completion of this course will allow the student to be able to:

1. Identify a global as well as an area perspective of animal production.
2. Quantify genetics and animal breeding.
3. Develop plans for livestock buildings and equipment
4. Describe the role of animal behavior in livestock production.
5. Provide knowledge of feeding programs for livestock
6. Develop strategies for marketing livestock
7. Acquire a workman's knowledge of animal health, disease prevention, and parasite control.
8. Understand meat and animal by-products in the market place.
9. Develop a knowledge of business aspect (hedging, borrowing money) in animal production.
10. Obtain an overall perspective of the beef cattle, dairy, sheep and goat, swine, poultry, and horse industries.

Course Outline

I. General

A. Food and Animals - A Global Perspective
B. Animal Science - USA
C. Genetics and Animal Breeding
D. Feeding Livestock
E. Livestock Buildings and Equipment
F. Animal Health, Disease Prevention, and Parasite Control
G. Animal Behavior
H. Marketing Livestock
I. Meat and Animal By-Products
J. Business Aspects of Agriculture

II. Beef Cattle

A. Beef Cattle Industry
B. Types and Breeds of Cattle
C. Establishing a Beef herd: Selecting and Judging Beef Cattle
D. Breeding Beef Cattle
E. Feeding and Managing Beef Cattle
F. Cow-Calf System
G. Stocker Cattle
H. Feed Lot Cattle
I. Marketing and Slaughtering

III. Dairy Cattle

A. Dairy Industry
B. Breeds of Dairy Cattle
C. Establishing the Dairy Herd: Selecting and Judging
D. Breeding
E. Feeding and Managing
F. Milk Secretion and Handling
G. Marketing Milk and Dairy Products

IV. Sheep and Goats

A. Sheep and Goat Industry
B. Types and Breeds of Sheep
C. Establishing the Flock: Selecting and Judging
D. Systems of Sheep production
E. Breeding Sheep
F. Feeding and Managing Sheep
G. Marketing
H. Wool and Mohair
I. Goats

V. Swine

A. Swine Industry
B. Types and Breeds of Swine
C. Establishing the Herd: Selecting and Judging
D. Breeding Swine
E. Feeding and managing Swine
F. Marketing and Slaughtering

VI. Poultry

A. Poultry industry
B. Poultry Breeds and Breeding: Selecting and Judging
C. Feeding and Managing
D. Poultry House and Equipment
E. Poultry Health, Disease Prevention, and Parasite Control
F. The Egg
G. Marketing of Poultry and Eggs

VII. Horses

A. Horse industry
B. Classes, Types, Uses, and Breeds of Horses
C. Selecting and Judging Horses
D. Breeding Horses
E. Feeding and Managing Horses

Agriculture 2386
Farm Buildings

Course Objectives

Upon successful completion of this course the student will be able to:

1. Define terms associated with farm building construction.
2. Determine the importance and economics of planning construction of farm buildings and other farm facilities.
3. Determine the feasibility of contracting vs self construction.
4. Identify various materials used in farm building construction.
5. Understand insulation and ventilation requirements for farm buildings.
6. Consider electrical requirements for farm buildings.
7. Consider plumbing requirements for farm buildings.
8. Figure a bill of materials for constructing a farm building
9. Locate and plan farm buildings for convenience and environmental impact.
10. Estimate total costs of constructing a farm structure.

Course Outline

I. Introduction

- A. Modern Farm Buildings
- B. Building Economics
- C. Determining Feasibility

II. Farmstead Arrangement

- A. Planning the Farmstead
- B. Safety Factors Involved
- C. Environmental Considerations
- D. Cost Efficiency Factors

III. Building Construction Planning

- A. Hiring a Contractor
- B. Subcontracting
- C. Legal Documentation

IV. Building Materials

- A. Concrete and Masonry
- B. Wood
- C. Roofing Materials
- D. Electrical Materials
- E. Plumbing Materials
- F. Wall Covering Materials
- G. Paints and Plastics
- H. Fasteners
- I. Environmental Control Materials
- J. Fencing Materials

V. Estimating Costs of Materials

- A. Figuring Concrete and Masonry
- B. Determining Lumber Costs
- C. Estimating Roofing Costs
- D. Determining Electrical Materials Costs
- E. Figuring Plumbing Materials Costs
- F. Site Work Costs
- G. Painting Costs
- H. Ventilation, Heating, and Insulation Costs
- I. Fencing Costs
- J. Miscellaneous Costs

VI. Constructing Foundations and Floors

- A. Terms Used in Building Foundations and Floors
- B. Planning and Reinforcing
- C. Types and Uses

VII. Wall Construction

- A. Terms Associated with Wall Construction
- B. Stud Frame Construction
- C. Pole Frame Construction
- D. Rigid Frame Construction

VIII. Roof Construction

- A. Terms Associated with Roof Construction
- B. Conventional Framing
- C. Using Trusses
- D. Corrugated Roofing
- E. Shingles

IX. Planning Electrical Wiring

- A. Electrical Terms
- B. Determining Needs
- C. Sizing Wires
- D. Electrical Safety Devices

X. Planning the Plumbing System

A. Plumbing Terms
B. Determining Water Needs
C. Planning the Water Storage Facilities
D. Determining Sewage Disposal Needs

XI. Environmental Concerns

A. Determining Insulation Requirements
B. Ventilation, Heating, and Cooling Requirements
C. Alternate Energy Sources

XII. Fencing Requirements

A. Planning Fencing Needs
B. Corral Planning
C. Fencing for Livestock Control

XIII. Other Farm Building Requirements

A. Storage Facilities
B. Shop Facilities
C. Miscellaneous Farm Buildings (greenhouses, etc.)

Management 1310
Principles of Management

Course Objectives

Upon successful completion of this course the student will be able to:

1. Define management and discuss the four basic functions.
2. Discuss systems theory and contingency approaches to management.
3. Define the skills, role, and performance of managers.
4. Understand key elements of the planning process.
5. Discuss the types of decision-making and need for information.
6. Define the term organizing and its key functions.
7. Develop job descriptions.
8. Develop organizational designs.
9. Understand leadership approaches.
10. Utilize the communications process.
11. Motivate and measure people performance.
12. Understand the elements of control.
13. Develop human resource evaluations.
14. Understand organizational trends and entrepreneurship.

Course Outline

I. Introduction

II. Managers and Management

III. Skills, Role, and Performance

IV. Elements of Planning

V. Managerial Decision-making

VI. Managing Information Systems

VII. Strategic Planning

VIII. Elements of Organizing

IX. Job Design

X. Organizational Design

XI. Elements of Leading

XII. Communications

XIII. Motivation and Performance

XIV. Work Groups

XV. Elements of Controlling

XVI. Production-operations

XVII. Managing Human Resources

XVIII. Organizational Change

XIX. Managing Multinational Companies

XX. Social Responsibility

XXI. Developing Management Careers

XXII. Management and Entrepreneurship

Human Development 1301
Interpersonal Relations

Course Objectives

This course is designed to help the student increase self-awareness and learn to relate more effectively to others. Students are made aware of their feelings, values, attitudes and behaviors. The course content focuses on self-discovery, communication skills, perceptions, accurate listening, relationships, and conflict resolution.

Course Outline

I. Getting Started; Getting to Know Each Other.

II. The Importance of Human Communication; Exploring The Process.

III. Effective Communication; Some Principles, Saying What I Mean.

IV. The Self-Concept; Who Do You Think You Are?

V. The Self-Concept; How Did I Get This Way?

VI. The Self-Concept; How Can I Change My Opinion of Myself? Changes. Some Inventories.

VII. Perception; The Processes, Accuracies/Inaccuracies.

VIII. Perception; Societies' Role, Do Others See Me As I See Myself?

IX. Empathy; The Road To Understanding.

X. Emotions; Thinking and Feeling, Which Comes First?

XI. Emotions; Sharing Feelings, Why, When and How?

XII. Language; Words and Meanings, Where Words Go Astray.

XIII. Nonverbal Communication; Characteristics, Types, How to See What You Hear.

XIV. Listening and Hearing; Blockades to Good Listening...Why Can't You Hear Me?

XV. Listening and Hearing; Active Listening, I Didn't Know I Had a Style.

VI. Relationships; Characteristics, Attractions, Do Opposites Really Attract?

XVII. Relationships; Self-Disclosure, Risks, How To Create A More Satisfying Relationship.

XVIII. Relationships; Can I Care Too Much? Emotional Hooks.

XIX. Conflict Resolution; Personal Styles, Coping With Criticism.

XX. Conflict Resolution; Problem-Solving, Needs, Constructive Conflicts.

GARDEN CENTER MANAGEMENT
BASIC CERTIFICATE PROGRAM

Agriculture 1301
Introduction to Agricultural Economics

Course Objective

Upon the successful completion of this course, the student will:

1. Describe and relate examples of economic principles to the field of agriculture.
2. Determine methods of pricing, marketing, and consumption of agricultural products and how economic principles affect pricing, marketing, and the consumption of agricultural products.
3. Apply economic principles and concepts to the assembly of and processing and distribution of products of the agricultural industry.
4. Know the sources and how to use agricultural economic information, economic institutions, and economic organizations.

Course Outline

I. Introduction

A. The science of economics.

1. List and explain the steps in the decision making process.
2. Define economics and explain why economics should be studied.
3. List the function of an economic system and describe the economic goals of society.
4. Define microeconomics, macroeconomics, and agricultural economics.
5. List and describe economic models by type of industry and market.

B. Relationships between agriculture and the national economy.

1. Draw and label a circular flow diagram illustrating how households and business firms interact. Explain this diagram.
2. Define the economic goals of macroeconomics.

a. List the sequence and endogenous economic problems of agriculture.
b. Explain the microeconomic adjustments to macroeconomic decisions.

3. Explain the monetary and fiscal policy relationships between agriculture and the national economy.
4. Define the role agriculture plays in the national economy.

C. Agriculture in the U.S.

1. Agricultural systems

   a. Define production agriculture.
   b. Define agribusiness and explain the relationship of agricultural sales, supply, service, and marketing to agricultural production.
   c. Outline the organizational structure of the agricultural marketing system.

2. Structural characteristics of farm industries.

   a. Classify farms and agricultural businesses.
   b. Compare the numbers and sizes of agricultural businesses.

3. Outline methods for measuring agricultural productivity and efficiency.

D. Types of business organizations. Define and give examples of each:

1. Proprietorship
2. Partnership
3. Cooper tive
4. Corporation
5. Other control ownership methods

E. Comparative economic systems.

1. Explain the role of government in economic systems.
2. Define and compare the following economic systems:

   a. Capitalism
   b. Communism
   c. Socialism
   d. Mixed systems
   e. Other governmental systems

F. Market structure analysis.

1. Comparative models.

a. Define pure competition, list the necessary conditions for its existence and give examples of pure competition.
b. Define and list examples of monopolistic competition.
c. Define and list examples of oligopoly and other market models.

2. List the effects of market structure on the product and on the consumer.

II. Economic Principles of Production

A. Define agricultural production and list the processes concerned with such.

B. Concepts of production function.

1. Define the following and give examples of each:

a. Total physical product
b. Average physical product
c. Marginal physical product

2. Explain the importance and need for fixed resources.

C. Supply concepts.

1. List the factors affecting supply.
2. List the forces that affect increases, decreases, or shifts in supply.
3. List the factors that affect the price elasticity of supply.

D. Factors affecting supply.

1. Outline the factor-product relationship concerned with how much to produce.
2. The costs of production.

a. Classify costs.
b. Compute costs.
c. Relate costs to production.
d. Describe profit maximization.
e. List changes in technology affecting production.
f. Outline pricing of alternative products.

E. Concepts of elasticity.

1. Define elasticity of demand and explain what determines elasticity of demand.
2. Explain the relationship between price elasticity of demand and elasticity of supply.

F. Describe how fixed and variable costs are related to the time factor of production as concerned with long run and short run periods.

G. List and explain the principles of profit maximization.

III. Concepts of the Consumer

A. Define the law of diminishing marginal utility and give examples of such.
B. Define demand and describe this in relation to price and quality.
C. List and give examples of factors that affect demand.

1. Income
2. Population
3. Tastes and preferences.
4. Price and availability of other products.
5. Social factors.

D. List the factors that affect the elasticity of demand.
E. List and explain the elasticities for agricultural products.

1. Equilibrium
2. Factors causing price change.
3. Role of prices in resource allocation.
4. Characteristics of agricultural prices.

IV. Selected Economic Topics

A. Capital in agriculture.

1. List the types and sources of capital.
2. List the sources of agricultural credit.
3. Define and describe the structure and components of the Farm Credit System.
4. Calculate interest rates.
5. Define and give examples of compound and discount principles.

B. Natural resources

1. List common property resource problem.
2. Describe agricultural resources available to the producers.

C. Rural development

1. List reasons for the decline of growth in rural areas and communities.
2. List the problems in rural areas.

D. Public policy

1. Define policy.
2. List issues concerning food and farm output.
3. List past and present policy alternatives.
4. Outline the Farm Bill.

E. World trade and agriculture

1. List the basis for foreign trade and outline the U.S. policy.
2. Explain the economic effects of tariffs and quotas.
3. Outline the American agricultural trade system.
4. Define the balance of trade.
5. Outline the global food issues.

V. Definitions. Define the terms as listed in the student text.

Agriculture 1305
Horticulture 1305
General Horticulture

Course Objectives

Upon the successful completion of this course, the student will be able to:

1. Define horticulture as a science.
2. Describe the economic position of horticulture and the utilization of horticultural crops.
3. Discuss the historical perspective of horticulture.
4. Define the fields of horticulture and the relationship of each.
5. Describe the skills and training required for the fields of horticulture.
6. Define common taxonomic terms.
7. Describe how plants grow and list and describe factors affecting plant growth.
8. Describe characteristics of and demonstrate techniques of sexual and asexual reproduction of plants.
9. Characterize insects and groups of pathogens as plant pests.
10. List the principles of pest control.
11. Describe various harvesting, processing, and marketing methods of horticultural crops.
12. List and describe types of growing structures.
13. List and describe production techniques.
14. List and discuss fundamentals required for consideration before beginning a horticultural business.
15. Define the objectives of personnel management.
16. Describe correct communication procedures for horticultural businesses.
17. Identify the types of records necessary for operating a horticultural business.

Course Outline

I. Horticulture as a Science

   A. Define horticulture and the Latin derivative.
   B. List the natural sciences and technologies contained within and involved in the horticulture industry.

II. Economic Position and Utilization of Horticultural Crops

   A. Identify the monetary value of horticulture crops.
   B. Identify the percentage of horticulture crops consumed in the United States.

III. History of Horticulture

A. Summarize, in essay form, the history of horticulture and how it began.
B. Outline developments that advanced plant agriculture and horticulture.
C. List and approximately date advancement made in crop science for this century.

IV. Fields of Horticulture

A. Define and describe the professions contained in the following fields of horticulture.

1. Pomology
2. Olericulture
3. Floriculture
4. Nursery culture
5. Landscape design
6. Interiorscaping
7. Specialized and nontraditional areas

B. Describe the categories of employment of the fields of horticulture listed above.
C. Describe different types of:

1. Nurseries
2. Landscapes

V. Skills and Training Required in the Various Fields of Horticulture

A. Outline the educational requirements of professions within the various fields of horticulture.
B. Identify the training and skills required for the professions within the various fields of horticulture.

VI. Planting, Culture, Care, Harvesting, and Utilization of Horticultural Crops

A. List and define various plant classification systems.
B. Describe the natural classifications for the plant kingdom.
C. Use scientific plant names correctly.
D. Define common taxonomic and professional terms.
E. Describe plants using taxonomic terms.
F. Demonstrate the use of a plant key.

VII. Plant Growth

A. Define:

1. Plant growth
2. Photosynthesis
3. Respiration
4. Transpiration

B. Describe the environmental factors that affect plant growth.
C. Describe how environmental factors affect plant growth.
D. Distinguish between vegetative growth and reproductive growth.
E. Define growth regulators.
F. List and describe functions of both natural occurring and synthetic growth regulators.

VIII. Characteristics and Techniques of Sexual and Asexual Reproduction

A. Describe the characteristics of sexual and asexual reproduction in plants.
B. Describe the process of mitosis and meiosis.
C. List the most common propagation techniques.
D. Discuss methods of plant improvements.
E. List types of media mixes and identify their components.
F. Demonstrate techniques for propagation by use of:

1. Cuttings
2. Seeds
3. Grafting
4. Budding
5. Layering

IX. Insects and Diseases

A. List major causes of injury to plants.
B. Characterize insects as plant pests.
C. Characterize groups of pathogens as plant pests.
D. List common symptoms of injured plants.

X. Pest Control

A. List the principles of pest control.
B. Describe the types of pesticides and their safe use.
C. Explain the concepts of biological controls.

XI. Harvesting Processing and Marketing

A. Describe methods of harvesting different horticultural crops.
B. List changes that occur in harvested produce.
C. Outline the purpose and methods of grading produce.
D. Identify process of market preparation for produce.
E. List methods of transportation and discuss advantages and disadvantages.
F. Outline factors concerning the storage and preservation of produce.
G. Describe the method of food processing.

XII. Growing Structures

A. List and compare the types of growing structures.
B. List the characteristics of greenhouse coverings.
C. List the advantages and disadvantages of different methods of greenhouse heating.
D. Describe the methods of ventilating or cooling a greenhouse.
E. List and describe energy conserving methods used in greenhouses.
F. Diagram greenhouse bench arrangement systems and identify their efficiency.

XIII. Production Techniques

A. Explain the need for a crop production schedule.
B. Describe methods of media pasteurizing.
C. Discuss the need for soil testing.
D. Outline the methods of fertilization, irrigation, and spacing of horticulture crops.
E. Explain techniques of pruning.
F. Identify the need for the development of production schedules.

XIV. Starting Your Own Business

A. Describe the forms of business ownership.
B. Explain the use and value of market surveys.
C. List some sources of capital.
D. List factors to consider in selecting a site for a business.
E. Outline the major laws and regulations affecting horticultural businesses.
F. Describe the methods, values, and limitations of advertising.
G. List characteristics of effective advertising.
H. List characteristics of effective displays.

XV. Personnel Management

A. Define and list the objectives of personnel management.
B. List the characteristics of a good personnel manager.
C. List the characteristics of a good salesperson.
D. Describe an effective sales procedure.

XVI Business Communications

A. List the parts of a business letter.
B. Outline how to place a business telephone call correctly.
C. Outline how to answer a business telephone call correctly.

XVII. Record Keeping

A. List four characteristics of a good record keeping system.
B. List the four types of business records kept.
C. Define the profit and loss statement.
D. Define the balance sheet.
E. Describe the approaches to pricing merchandise and services.
F. List the advantages and disadvantages of the applications of computers in horticultural businesses.

Horticulture 1314
Plant Identification I
Trees, Shrubs, Vines, and Ground Cover

Course Objectives

Upon the successful completion of this course, the student will:

1. Identify plants using their morphology.
2. Classify plants using growth habits, leaf bearing habit, life span, and temperature tolerance.
3. Identify plants using both the common and scientific name.
4. Be able to prove information on landscape use and propagation of plants.
5. Be able to locate areas of distribution better suited for the particular plants growth.
6. Be able to identify plants from live specimens in the field, landscape, or container plants and from photographs or slides.

Course Outline

I. Plant Morphology

- A. Identify and define plant forms.
- B. Identify, define, and label major parts of the external anatomy of the plant.
- C. Identify common leaf shapes.
- D. Identify leaf tips.
- E. Identify leaf margins.
- F. Identify leaf types.
- G. Identify types of flower arrangement.
- H. Identify types of flowers.
- I. Identify individual flower parts.

II. Plant Classification

- A. Classify plants according to form.
- B. Classify plants according to growth habits.
- C. Classify plants according to leaf bearing habits.
- D. Classify plants according to life span.
- E. Classify plants according to temperature tolerance.
- F. Classify plants according to flowering characteristics.

III. Plant Propagation and Uses

- A. Identify the best method of propagation of the listed plants.
- B. List the uses for the listed plants.
- C. Label areas of distribution for listed plants.

IV. Identification

A. Use common name, genus, and species.
B. Spell names correctly.
C. Use the following list:

TREES

1.	Acacia Farnesiana	Sweet Acacia (Huisache)
2.	Acer palmatum	Japenese Maple
3.	Acer rubrum	Red or Swamp Maple
4.	Acer saccharinum	Silver Maple
5.	Acer saccharinum subsp. grandidentatum	Big Tooth Maple
6.	Albizia Julibrissin	Mimosa (Silk) Tree
7.	Betula nigra	River or Black Birch
8.	Carya illinoinensis	Pecan
9.	Catalpa bignoniodes	Southern Catalpa
10.	Celtis occidantalis	Common Hackberry
11.	Cercis canadensis	Eastern redbud
12.	Cedrus deodara	Deodar Cedar
13.	Chamaerops humulis	Mediterranean Fan Palm
14.	Chilopsis linearis	Desert Willow
15.	Citrus	(Species)
16.	Cupressus sempervirens 'Glauca'	Italian Cypress
17.	Eriobotrya japonica	Loquat (Japanese Plum)
18.	Fraxinus velutina	Arizona Ash
19.	Ginko biloba	Ginko (Maidenhair tree)
20.	Gleditsia triacanthos	Common Honey Locust
21.	Gleditsia triacanthos inermis	Thornless Honey Locust
22.	Ilex vomitoria	Yaupon Holly
23.	Juniperus scopulorum	Rocky Mountain Juniper
24.	Juniperus virginiana	Red Cedar
25.	Koelreuteria paniculata	Golden Rain Tree
26.	Lagerstroemia indica	Crape Myrtle
27.	Ligustrum lucidum	Japenese Ligustrum
28.	Liquidambar Styraciflua	American Sweet Gum
29.	Magnolia grandiflora	Southern Magnolia
30.	Melia Azedarach	Chinaberry
31.	Morus alba (Male)	Fruitless Mulberry
32.	Parkinsonia aculeata	Retama
33.	Phoenix canariensis	Canary Island Date Palm
34.	Pinus cembroides	Pinon Pine
35.	Pinus halepensis	Aleppo Pine
36.	Pinus thumbergiana	Japenese Black Pine
37.	Pistacia chinensis	Chinese Pistachio
38.	Platanus occidentalis glabrato	Texas Sycamore
39.	Populus deltoides	Cottonless Cottonwood
40.	Porsopis juliflora	Honey Mesquite
41.	Prunus cerasifera	Purple-leaf Plum
42.	Prunus persica	Common Peach

43.	Pyrus calleryana	Bradford (Callery) Pear
44.	Quercus macrocarpa	Burr Oak
45.	Quercus marilandica	Blackjack Oak
46.	Quercus nigra	Water Oak
47.	Quercus palustrus	Pin Oak
48.	Quercus phellos	Willow Oak
49.	Quercus rubra	Red Oak
50.	Quercus Shumardii	Shumard's Red Oak
51.	Quercus stellata	Post Oak
52.	Quercus texana	Texas Red Oak
53.	Quercus virginiana	Live Oak
54	Salix babylinica	Weeping Willow
55.	Sapium sebiferum	Chinese Tallow
56.	Taxodium distichum	Bald Cypress
57.	Ulmus americana	American Elm
58.	Washington robust	Mexican Fan Palm

SHRUBS

1.	Abelia grandiflora	Glossy Abelia
2.	Agave americana	Century Plant
3.	Acuba japonicavariegata	Gold Dust Plant
4.	Berberis Thunbergii	Japenese Barberry
5.	Buxus micropylla japonica	Japenese Boxwood
6.	Cleyera japonica	Cleyera
7.	Cortederia selloana	Pampas grass
8.	Cotoneaster glaucphyllus	Silverleaf Cotoneaster
9.	Dasylirion texanum	Texas Sotol
10.	Eleagnus macrophylla "Ebbengi"	Silverberry
11.	Eriobotrya japonica	Loquat
12.	Chamaerops humulis	Mediterranean Fan Palm
13.	Euonymus japonica	Evergreen Euonymus
14.	Euonymus japonica aureo-marginata	Gold-Edge Euonymus
15.	Euonymus japonica aureo-variegata	Goldspot Euonymus
16.	Fouquieria splendens	Ocotillo
17.	Hisbiscus rosa-sinensis	Chinese Hibiscus
18.	Hibiscus syriacus	Althea (Rose of Sharon)
19.	Ilex cornuta	Chinese Horned Holly
20.	Ilex cornuta cv. "Burfordii"	Burford Holly
21.	Ilex cornuta cv. "Rotunda"	Dwarf Chinese Holly
22.	Ilex vomitoria	Yaupon Holly
23.	Ilex vomitoria cv. "Nana"	Dwarf Yaupon Holly
24.	Juniperus chinensis "Pfitzerana"	Pfitzer Juniper
25.	Lagerstroemia indica	Crepe Myrtle
26.	Lantana Camara	Lantana
27.	Leucophyllum frutescens	Ceniza (Purple Sage)

28.	Ligustrum japonicum	Japanese Ligustrum
29.	Ligustrum lucidum	Waxleaf Ligustrum
30.	Myrica cerifera	Wax Myrtle
31.	Nandina domestica	Heavenly Bamboo (Nandina)
32.	Nerium oleander	Oleander
33.	Photinia Fraseri	Fraser's Photinia
34.	Photina glabra	Japanese Photinia
35.	Photina serrulata	Chinese Photinia
36.	Pittosporum tobira	Green Pittosporum
37.	Pittosporum tobira variegata	Variegated Pittosporum
38.	Pumbago auriculata	Blue Plumbago
39.	Podocarpus macrophyllus	Large Leaf Japanese Yew
40.	Podocarpus macrophyllus var. Makii	Small Leaf Japanese Yew
41.	Punica granarum	Pomegranate
42.	Pyrancantha coccinea	Pyrancantha
43.	Raphiolepis indica	Indian Hawthorne
44.	Rhododendron indicum	Indica Azalea
45.	Rhododendron hybrids	Kurume Azalea
46.	Rhus glabra	Smooth Sumac
47.	Rosmarinus officinalis	Rosemary
48.	Santolina chamaecyparissus	Santolina Gray
49.	Santolina virens	Santolina Green
50.	Sophora secundiflora	Texas Mountain Laurel
51.	Viburnum japonicum	Japanese Viburnum
52.	Wisteria floribunda	Wisteria Japanese
53.	Yucca aloifolia	Spanish Bayonet
54.	Yucca parviflora	Red Yucca

VINES AND GROUND COVER

1.	Agapanthus africanus	Lili-of-the-Nile
2.	Ajuga reptans	Carpet Bugle
3.	Aspidistra elatior	Cast Iron Plant
4.	Bifnonia radicans grandiflora	Yellow Trumpetvine
5.	Bougainvellea sp.	Bougainvillea
6.	Dichondra repens	Dichondra
7.	Euonymus fortunei "colorata"	Purpleleaf Wintercreeper
8.	Ficus pumila	Climbing Fig
9.	Gelsemium sempervirens	Carolina Jasmine
10.	Hedera helix	English Ivy
11.	Hemerocallis sp.	Daylily
12.	Lantana montevidensis	Trailing Lantana
13.	Lirope Muscari	Big Blue Lilyturf
14.	Lonicera japonica "Halliana"	Hall's Honeysuckle
15.	Lonicera semperivirens	Coral Honeysuckle
16.	Ophiopagon japonicus	Monkey or Mondo Grass
17.	Rosmarinus officinalis	Rosemary
18.	Sedum (varieties)	Stonecrop

19.	Trachelospermum asiaticum	Asian Jasmine
20.	Trachelospermum jasminoides	Star Jasmine
21.	Verbena peruviana	Garden Verbena
22.	Verbena pulchella	Sand Verbena
23.	Vinca major	Bigleaf Periwinkle
24.	Vinca minor	Littleleaf Periwinkle
25.	Wisteria (species)	Wisteria

POULTRY PRODUCTS MANAGEMENT
BASIC CERTIFICATE PROGRAM

Agriculture 1101
The Agricultural Industry

Course Objective

Upon the successful completion of this course, the student will:

1. Be able to make an intelligent decision in the choice of an agricultural career.
2. Be familiar with the different career opportunities in agriculture.
3. Be familiar with the importance of agriculture to the global economy.

Outline

I. Importance of Agriculture to the State, Nation, and World

II. Career Opportunities in Animal Science

III. Career Opportunities in Natural Resources

IV. Career Opportunities in Agribusiness

V. Career Opportunities in Plant Science/Horticulture

VI. Career Opportunities in Government

VII. Scientific Agricultural Careers

VIII. Career Opportunities in Agricultural Mechanics

IX. The New Fields of Agriculture

X. Agriculture in the World Economy

XI. Agriculture's Future

Agriculture 1313
Agriculture Mechanics

Course Objectives

Upon successful completion of this course the student will be able to:

1. Develop terminology useful for discussing farm machinery.
2. Design machinery appropriate for farm enterprises.
3. Repair machinery that is environmentally sound.
4. Quantify specifications and read blueprints of machinery.
5. Demonstrate knowledge and technique in choosing materials for a particular farm implement.
6. Demonstrate a working knowledge of wiring in farm machinery.
7. Demonstrate and identify tools used in farm machinery.
8. Quantify, develop, and arrange for contract negotiation as well as financing for farm machinery.
9. Develop a sense of safety values associated with farm machinery.

Course Outline

I. Introduction

- A. Modern Farm Tractors
- B. Diesel Engines
- C. Tractor Fuels, Oils, and Greases

II. Preventive Maintenance

- A. The Meaning of Preventive Maintenance
- B. The Steps in General Maintenance
- C. Maintaining the Lubrication System
- D. Maintaining the Air Cleaner and Crankcase Breather
- E. Maintaining the Cooling System
- F. Maintaining the Fuel System
- G. Maintaining the Electrical System
- H. Maintaining the Hydraulic System
- I. Maintaining the Power Transmission System
- J. Maintaining the Chassis

III. Operation, Repair, and Storage

A. Operating the Tractor
B. Operating the Tractor in Cold Weather
C. Operating the Tractor Safely
D. Repairing the Engine
E. Trouble-Shooting Guide
F. Storing Equipment
G. Preparing for Use after Storage

IV. Small Engines

A. Maintenance

Agriculture 1414
General Agronomy

Course Objectives

Successful completion of this course will allow the student to be able to:

1. Identify an area, a national and a global perspective of soil use.
2. Quantify soil types, phases, and classifications.
3. Develop plans using utilization of different soil types.
4. Describe the role of climate on soils.
5. Demonstrate knowledge of fertilization of soils.
6. Acquire working knowledge of plants that will grow on certain soils.
7. Develop plans for soil conservation.
8. Understand and acquire knowledge needed for judging soils.
9. Understand and be able to comprehend soil profile maps, topography maps, and water run off maps.
10. Be able to identify soil by feeling texture.
11. Understand methodology of soils for building materials.
12. Demonstrate knowledge of environmental impact of soils on man's economy.
13. Comprehend the impact of soils on a nation's economy.

Course Outline

I. Soil Science and Use

- A. Formation
- B. Physical Characteristics
- C. Chemical Characteristics
- D. Soil Profile
- E. Soil Maps
- F. Land's Demand for Soil

II. Soils, Nutrition, and Plant Growth

- A. Soils and Plan Growth
- B. How Plants Absorb Nutrients
- C. Plant Nutrients
- D. Mineral Deficiency and Toxiology
- E. Fertilizer as a Pollutant

III. Liming

A. Why Soils Become Acid
B. Meaning of Soil pH
C. What Lime Does to Soil
D. Kinds of Lime
E. Lime Requirement
F. Applying Lime
G. Lime Conversion Factors

IV. Fertilizing

A. What is Fertilizer
B. Types of Fertilizer
C. Secondary Plant Nutrients
D. Micronutrients
E. Soil Testing
F. Fundamentals of Fertilizer Application
G. Calculation of Fertilizer Cost

V. Using Organic Residues

A. Using Crop Residues
B. Using Animal Residues
C. Using Sewage Residues
D. Using Septage
E. Using Compost
F. Using Wood Wastes
G. Using Food Processing Wastes
H. Using Peat

VI. Tillage Practices

A. Purposes of Tillage
B. Soil Conditions
C. Soil Compaction
D. Conservation Tillage
E. Summer Fallow
F. Double Cropping
G. Control of Tillage Pans
H. Control of Surface Crusts

VII. Soil and Water Conservation

A. Sources of Soil Lost
B. Cropping Systems to Reduce Soil Lost
C. Minimum Tillage
D. Terracing
E. Contour Tillage
F. Soil Conservation Service
G. Non-point Source Pollutants
H. Conservation Irrigation
I. Desertification

VIII. Drainage

A. Water Tables
B. Soil Surveys
C. Water Movement in Soil
D. Soil Aeration Drainage and Plant Growth
E. Artificial Drainage
F. Drainage System Selection
G. Tile Drainage
H. Tube Drainage
I. Bed Drainage
J. Ditch Drainage
K. Sump Pump Drainage
L. Vertical Drainage

IX. Irrigation

A. Importance of Water
B. When to Irrigate
C. Selection of Irrigation System
D. Irrigation Methods
E. Fertilizer Application through Irrigation
F. Irrigation Tail Water Management

X. Reclaiming Saline and Sodic Soils

A. Classification of Saline and Sodic Soils
B. Effect of Salt on Plant Growth
C. Selecting Plants that are Saline and Salt Tolerant
D. Water Quality and Saline Soils
E. Reclaiming Prevention and Control Saline Soils
F. Saline Seeps

XI. Judging Soils

A. Why Judge Soils
B. Conducting Land Judging
C. Selecting Site
D. Land Judging Scorecard
E. Soil and Land Characteristics
F. Recommended Land Treatments

XII. Pastures, Soil Water, and Fertility Management

A. Forage Grasses
B. Forage Legumes
C. Soil for Seeding
D. Fertility Management
E. Grazing Management
F. Renovating Pastures
G. Irrigating Pastures

XIII. Rangelands

A. Range Management
B. Range Improvement Practices
C. Range Management Planning

XIV. Field Crops: Soil, Water, and Fertility Management

A. Crop Production
B. Agronomic Classification of Plants

XV. Vegetable Gardens: Soil, Water, and Fertility Management

A. Tillage
B. Soil Testing
C. Agronomic Practices

XVI. Turf and Ornamental Plants: Soil, Water, and Fertility Management

A. Turf Grasses
B. Ornamental Plants

XVII. Greenhouses and Nurseries: Soil, Water, and Fertility Management

A. Preparing Soils for Greenhouses
B. Greenhouse Mechanics

XVIII. Orchards: Soil, Water, and Fertility Management

A. Preparing Soils for Orchards
B. Orchard Management

XIX. Forests: Soil, Water, and Fertility Management

A. Preparing Soils for Forests
B. Tree Management

XX. Vegetating Disturbed Areas: Soil, Water, and Fertility Management

A. Sequence to Establishing Vegetation
B. Vegetating Areas Disturbed by Surface Mining
C. Vegetating Areas Disturbed by Road Construction and Urbanization

Agriculture 1484
Introduction to Animal Science

Course Objectives

Successful completion of this course will allow the student to be able to:

1. Identify a global as well as an area perspective of animal production.
2. Quantify genetics and animal breeding.
3. Develop plans for livestock buildings and equipment
4. Describe the role of animal behavior in livestock production.
5. Provide knowledge of feeding programs for livestock
6. Develop strategies for marketing livestock
7. Acquire a workman's knowledge of animal health, disease prevention, and parasite control.
8. Understand meat and animal by-products in the market place.
9. Develop a knowledge of business aspect (hedging, borrowing money) in animal production.
10. Obtain an overall perspective of the beef cattle, dairy, sheep and goat, swine, poultry, and horse industries.

Course Outline

I. General

A. Food and Animals - A Global Perspective
B. Animal Science - USA
C. Genetics and Animal Breeding
D. Feeding Livestock
E. Livestock Buildings and Equipment
F. Animal Health, Disease Prevention, and Parasite Control
G. Animal Behavior
H. Marketing Livestock
I. Meat and Animal By-Products
J. Business Aspects of Agriculture

II. Beef Cattle

A. Beef Cattle Industry
B. Types and Breeds of Cattle
C. Establishing a Beef herd: Selecting and Judging Beef Cattle
D. Breeding Beef Cattle
E. Feeding and Managing Beef Cattle
F. Cow-Calf System
G. Stocker Cattle
H. Feed Lot Cattle
I. Marketing and Slaughtering

III. Dairy Cattle

A. Dairy Industry
B. Breeds of Dairy Cattle
C. Establishing the Dairy Herd: Selecting and Judging
D. Breeding
E. Feeding and Managing
F. Milk Secretion and Handling
G. Marketing Milk and Dairy Products

IV. Sheep and Goats

A. Sheep and Goat Industry
B. Types and Breeds of Sheep
C. Establishing the Flock: Selecting and Judging
D. Systems of Sheep production
E. Breeding Sheep
F. Feeding and Managing Sheep
G. Marketing
H. Wool and Mohair
I. Goats

V. Swine

A. Swine Industry
B. Types and Breeds of Swine
C. Establishing the Herd: Selecting and Judging
D. Breeding Swine
E. Feeding and managing Swine
F. Marketing and Slaughtering

VI. Poultry

A. Poultry industry
B. Poultry Breeds and Breeding: Selecting and Judging
C. Feeding and Managing
D. Poultry House and Equipment
E. Poultry Health, Disease Prevention, and Parasite Control
F. The Egg
G. Marketing of Poultry and Eggs

VII. Horses

A. Horse industry
B. Classes, Types, Uses, and Breeds of Horses
C. Selecting and Judging Horses
D. Breeding Horses
E. Feeding and Managing Horses

Agriculture 2386
Farm Buildings

Course Objectives

Upon successful completion of this course the student will be able to:

1. Define terms associated with farm building construction.
2. Determine the importance and economics of planning construction of farm buildings and other farm facilities.
3. Determine the feasibility of contracting vs self construction.
4. Identify various materials used in farm building construction.
5. Understand insulation and ventilation requirements for farm buildings.
6. Consider electrical requirements for farm buildings.
7. Consider plumbing requirements for farm buildings.
8. Figure a bill of materials for constructing a farm building
9. Locate and plan farm buildings for convenience and environmental impact.
10. Estimate total costs of constructing a farm structure.

Course Outline

I. Introduction

- A. Modern Farm Buildings
- B. Building Economics
- C. Determining Feasibility

II. Farmstead Arrangement

- A. Planning the Farmstead
- B. Safety Factors Involved
- C. Environmental Considerations
- D. Cost Efficiency Factors

III. Building Construction Planning

- A. Hiring a Contractor
- B. Subcontracting
- C. Legal Documentation

IV. Building Materials

- A. Concrete and Masonry
- B. Wood
- C. Roofing Materials
- D. Electrical Materials
- E. Plumbing Materials
- F. Wall Covering Materials
- G. Paints and Plastics
- H. Fasteners
- I. Environmental Control Materials
- J. Fencing Materials

V. Estimating Costs of Materials

- A. Figuring Concrete and Masonry
- B. Determining Lumber Costs
- C. Estimating Roofing Costs
- D. Determining Electrical Materials Costs
- E. Figuring Plumbing Materials Costs
- F. Site Work Costs
- G. Painting Costs
- H. Ventilation, Heating, and Insulation Costs
- I. Fencing Costs
- J. Miscellaneous Costs

VI. Constructing Foundations and Floors

- A. Terms Used in Building Foundations and Floors
- B. Planning and Reinforcing
- C. Types and Uses

VII. Wall Construction

- A. Terms Associated with Wall Construction
- B. Stud Frame Construction
- C. Pole Frame Construction
- D. Rigid Frame Construction

VIII. Roof Construction

- A. Terms Associated with Roof Construction
- B. Conventional Framing
- C. Using Trusses
- D. Corrugated Roofing
- E. Shingles

IX. Planning Electrical Wiring

- A. Electrical Terms
- B. Determining Needs
- C. Sizing Wires
- D. Electrical Safety Devices

X. Planning the Plumbing System

A. Plumbing Terms
B. Determining Water Needs
C. Planning the Water Storage Facilities
D. Determining Sewage Disposal Needs

XI. Environmental Concerns

A. Determining Insulation Requirements
B. Ventilation, Heating, and Cooling Requirements
C. Alternate Energy Sources

XII. Fencing Requirements

A. Planning Fencing Needs
B. Corral Planning
C. Fencing for Livestock Control

XIII. Other Farm Building Requirements

A. Storage Facilities
B. Shop Facilities
C. Miscellaneous Farm Buildings (greenhouses, etc.)

Management 1310
Principles of Management

Course Objectives

Upon successful completion of this course the student will be able to:

1. Define management and discuss the four basic functions.
2. Discuss systems theory and contingency approaches to management.
3. Define the skills, role, and performance of managers.
4. Understand key elements of the planning process.
5. Discuss the types of decision-making and need for information.
6. Define the term organizing and its key functions.
7. Develop job descriptions.
8. Develop organizational designs.
9. Understand leadership approaches.
10. Utilize the communications process.
11. Motivate and measure people performance.
12. Understand the elements of control.
13. Develop human resource evaluations.
14. Understand organizational trends and entrepreneurship.

Course Outline

I. Introduction

II. Managers and Management

III. Skills, Role, and Performance

IV. Elements of Planning

V. Managerial Decision-making

VI. Managing Information Systems

VII. Strategic Planning

VIII. Elements of Organizing

IX. Job Design

X. Organizational Design

XI. Elements of Leading

XII. Communications

XIII. Motivation and Performance

XIV. Work Groups

XV. Elements of Controlling

XVI. Production-operations

XVII. Managing Human Resources

XVIII. Organizational Change

XIX. Managing Multinational Companies

XX. Social Responsibility

XXI. Developing Management Careers

XXII. Management and Entrepreneurship

Human Development 1301
Interpersonal Relations

Course Objectives

This course is designed to help the student increase self-awareness and learn to relate more effectively to others. Students are made aware of their feelings, values, attitudes and behaviors. The course content focuses on self-discovery, communication skills, perceptions, accurate listening, relationships, and conflict resolution.

Course Outline

I. Getting Started; Getting to Know Each Other.

II. The Importance of Human Communication; Exploring The Process.

III. Effective Communication; Some Principles, Saying What I Mean.

IV. The Self-Concept; Who Do You Think You Are?

V. The Self-Concept; How Did I Get This Way?

VI. The Self-Concept; How Can I Change My Opinion of Myself? Changes. Some Inventories.

VII. Perception; The Processes, Accuracies/Inaccuracies.

VIII. Perception; Societies' Role, Do Others See Me As I See Myself?

IX. Empathy; The Road To Understanding.

X. Emotions; Thinking and Feeling, Which Comes First?

XI. Emotions; Sharing Feelings, Why, When and How?

XII. Language; Words and Meanings, Where Words Go Astray.

XIII. Nonverbal Communication; Characteristics, Types, How to See What You Hear.

XIV. Listening and Hearing; Blockades to Good Listening...Why Can't You Hear Me?

XV. Listening and Hearing; Active Listening, I Didn't Know I Had a Style.

VI. Relationships; Characteristics, Attractions, Do Opposites Really Attract?

XVII. Relationships; Self-Disclosure, Risks, How To Create A More Satisfying Relationship.

XVIII. Relationships; Can I Care Too Much? Emotional Hooks.

XIX. Conflict Resolution; Personal Styles, Coping With Criticism.

XX. Conflict Resolution; Problem-Solving, Needs, Constructive Conflicts.

RETAIL FLORIST MANAGEMENT BASIC CERTIFICATE PROGRAM

Agriculture 1301
Introduction to Agricultural Economics

Course Objective

Upon the successful completion of this course, the student will:

1. Describe and relate examples of economic principles to the field of agriculture.
2. Determine methods of pricing, marketing, and consumption of agricultural products and how economic principles affect pricing, marketing, and the consumption of agricultural products.
3. Apply economic principles and concepts to the assembly of and processing and distribution of products of the agricultural industry.
4. Know the sources and how to use agricultural economic information, economic institutions, and economic organizations.

Course Outline

I. Introduction

A. The science of economics.

1. List and explain the steps in the decision making process.
2. Define economics and explain why economics should be studied.
3. List the function of an economic system and describe the economic goals of society.
4. Define microeconomics, macroeconomics, and agricultural economics.
5. List and describe economic models by type of industry and market.

B. Relationships between agriculture and the national economy.

1. Draw and label a circular flow diagram illustrating how households and business firms interact. Explain this diagram.
2. Define the economic goals of macroeconomics.

a. List the sequence and endogenous economic problems of agriculture.
b. Explain the microeconomic adjustments to macroeconomic decisions.

3. Explain the monetary and fiscal policy relationships between agriculture and the national economy.
4. Define the role agriculture plays in the national economy.

C. Agriculture in the U.S.

1. Agricultural systems

   a. Define production agriculture.
   b. Define agribusiness and explain the relationship of agricultural sales, supply, service, and marketing to agricultural production.
   c. Outline the organizational structure of the agricultural marketing system.

2. Structural characteristics of farm industries.

   a. Classify farms and agricultural businesses.
   b. Compare the numbers and sizes of agricultural businesses.

3. Outline methods for measuring agricultural productivity and efficiency.

D. Types of business organizations. Define and give examples of each:

1. Proprietorship
2. Partnership
3. Cooperative
4. Corporation
5. Other control ownership methods

E. Comparative economic systems.

1. Explain the role of government in economic systems.
2. Define and compare the following economic systems:

   a. Capitalism
   b. Communism
   c. Socialism
   d. Mixed systems
   e. Other governmental systems

F. Market structure analysis.

1. Comparative models.

a. Define pure competition, list the necessary conditions for its existence and give examples of pure competition.
b. Define and list examples of monopolistic competition.
c. Define and list examples of oligopoly and other market models.

2. List the effects of market structure on the product and on the consumer.

II. Economic Principles of Production

A. Define agricultural production and list the processes concerned with such.

B. Concepts of production function.

1. Define the following and give examples of each:

a. Total physical product
b. Average physical product
c. Marginal physical product

2. Explain the importance and need for fixed resources.

C. Supply concepts.

1. List the factors affecting supply.
2. List the forces that affect increases, decreases, or shifts in supply.
3. List the factors that affect the price elasticity of supply.

D. Factors affecting supply.

1. Outline the factor-product relationship concerned with how much to produce.
2. The costs of production.

a. Classify costs.
b. Compute costs.
c. Relate costs to production.
d. Describe profit maximization.
e. List changes in technology affecting production.
f. Outline pricing of alternative products.

E. Concepts of elasticity.

1. Define elasticity of demand and explain what determines elasticity of demand.
2. Explain the relationship between price elasticity of demand and elasticity of supply.

F. Describe how fixed and variable costs are related to the time factor of production as concerned with long run and short run periods.

G. List and explain the principles of profit maximization.

III. Concepts of the Consumer

A. Define the law of diminishing marginal utility and give examples of such.
B. Define demand and describe this in relation to price and quality.
C. List and give examples of factors that affect demand.

1. Income
2. Population
3. Tastes and preferences.
4. Price and availability of other products.
5. Social factors.

D. List the factors that affect the elasticity of demand.
E. List and explain the elasticities for agricultural products.

1. Equilibrium
2. Factors causing price change.
3. Role of prices in resource allocation.
4. Characteristics of agricultural prices.

IV. Selected Economic Topics

A. Capital in agriculture.

1. List the types and sources of capital.
2. List the sources of agricultural credit.
3. Define and describe the structure and components of the Farm Credit System.
4. Calculate interest rates.
5. Define and give examples of compound and discount principles.

B. Natural resources

1. List common property resource problem.
2. Describe agricultural resources available to the producers.

C. Rural development

1. List reasons for the decline of growth in rural areas and communities.
2. List the problems in rural areas.

D. Public policy

1. Define policy.
2. List issues concerning food and farm output.
3. List past and present policy alternatives.
4. Outline the Farm Bill.

E. World trade and agriculture

1. List the basis for foreign trade and outline the U.S. policy.
2. Explain the economic effects of tariffs and quotas.
3. Outline the American agricultural trade system.
4. Define the balance of trade.
5. Outline the global food issues.

V. Definitions. Define the terms as listed in the student text.

Agriculture 1305
Horticulture 1305
General Horticulture

Course Objectives

Upon the successful completion of this course, the student will be able to:

1. Define horticulture as a science.
2. Describe the economic position of horticulture and the utilization of horticultural crops.
3. Discuss the historical perspective of horticulture.
4. Define the fields of horticulture and the relationship of each.
5. Describe the skills and training required for the fields of horticulture.
6. Define common taxonomic terms.
7. Describe how plants grow and list and describe factors affecting plant growth.
8. Describe characteristics of and demonstrate techniques of sexual and asexual reproduction of plants.
9. Characterize insects and groups of pathogens as plant pests.
10. List the principles of pest control.
11. Describe various harvesting, processing, and marketing methods of horticultural crops.
12. List and describe types of growing structures.
13. List and describe production techniques.
14. List and discuss fundamentals required for consideration before beginning a horticultural business.
15. Define the objectives of personnel management.
16. Describe correct communication procedures for horticultural businesses.
17. Identify the types of records necessary for operating a horticultural business.

Course Outline

I. Horticulture as a Science

   A. Define horticulture and the Latin derivative.
   B. List the natural sciences and technologies contained within and involved in the horticulture industry.

II. Economic Position and Utilization of Horticultural Crops

   A. Identify the monetary value of horticulture crops.
   B. Identify the percentage of horticulture crops consumed in the United States.

III. History of Horticulture

A. Summarize, in essay form, the history of horticulture and how it began.
B. Outline developments that advanced plant agriculture and horticulture.
C. List and approximately date advancement made in crop science for this century.

IV. Fields of Horticulture

A. Define and describe the professions contained in the following fields of horticulture.

1. Pomology
2. Olericulture
3. Floriculture
4. Nursery culture
5. Landscape design
6. Interiorscaping
7. Specialized and nontraditional areas

B. Describe the categories of employment of the fields of horticulture listed above.
C. Describe different types of:

1. Nurseries
2. Landscapes

V. Skills and Training Required in the Various Fields of Horticulture

A. Outline the educational requirements of professions within the various fields of horticulture.
B. Identify the training and skills required for the professions within the various fields of horticulture.

VI. Planting, Culture, Care, Harvesting, and Utilization of Horticultural Crops

A. List and define various plant classification systems.
B. Describe the natural classifications for the plant kingdom.
C. Use scientific plant names correctly.
D. Define common taxonomic and professional terms.
E. Describe plants using taxonomic terms.
F. Demonstrate the use of a plant key.

VII. Plant Growth

A. Define:

1. Plant growth
2. Photosynthesis
3. Respiration
4. Transpiration

B. Describe the environmental factors that affect plant growth.
C. Describe how environmental factors affect plant growth.
D. Distinguish between vegetative growth and reproductive growth.
E. Define growth regulators.
F. List and describe functions of both natural occurring and synthetic growth regulators.

VIII. Characteristics and Techniques of Sexual and Asexual Reproduction

A. Describe the characteristics of sexual and asexual reproduction in plants.
B. Describe the process of mitosis and meiosis.
C. List the most common propagation techniques.
D. Discuss methods of plant improvements.
E. List types of media mixes and identify their components.
F. Demonstrate techniques for propagation by use of:

1. Cuttings
2. Seeds
3. Grafting
4. Budding
5. Layering

IX. Insects and Diseases

A. List major causes of injury to plants.
B. Characterize insects as plant pests.
C. Characterize groups of pathogens as plant pests.
D. List common symptoms of injured plants.

X. Pest Control

A. List the principles of pest control.
B. Describe the types of pesticides and their safe use.
C. Explain the concepts of biological controls.

XI. Harvesting Processing and Marketing

A. Describe methods of harvesting different horticultural crops.
B. List changes that occur in harvested produce.
C. Outline the purpose and methods of grading produce.
D. Identify process of market preparation for produce.
E. List methods of transportation and discuss advantages and disadvantages.
F. Outline factors concerning the storage and preservation of produce.
G. Describe the method of food processing.

XII. Growing Structures

A. List and compare the types of growing structures.
B. List the characteristics of greenhouse coverings.
C. List the advantages and disadvantages of different methods of greenhouse heating.
D. Describe the methods of ventilating or cooling a greenhouse.
E. List and describe energy conserving methods used in greenhouses.
F. Diagram greenhouse bench arrangement systems and identify their efficiency.

XIII. Production Techniques

A. Explain the need for a crop production schedule.
B. Describe methods of media pasteurizing.
C. Discuss the need for soil testing.
D. Outline the methods of fertilization, irrigation, and spacing of horticulture crops.
E. Explain techniques of pruning.
F. Identify the need for the development of production schedules.

XIV. Starting Your Own Business

A. Describe the forms of business ownership.
B. Explain the use and value of market surveys.
C. List some sources of capital.
D. List factors to consider in selecting a site for a business.
E. Outline the major laws and regulations affecting horticultural businesses.
F. Describe the methods, values, and limitations of advertising.
G. List characteristics of effective advertising.
H. List characteristics of effective displays.

XV. Personnel Management

A. Define and list the objectives of personnel management.
B. List the characteristics of a good personnel manager.
C. List the characteristics of a good salesperson.
D. Describe an effective sales procedure.

XVI Business Communications

A. List the parts of a business letter.
B. Outline how to place a business telephone call correctly.
C. Outline how to answer a business telephone call correctly.

XVII. Record Keeping

A. List four characteristics of a good record keeping system.
B. List the four types of business records kept.
C. Define the profit and loss statement.
D. Define the balance sheet.
E. Describe the approaches to pricing merchandise and services.
F. List the advantages and disadvantages of the applications of computers in horticultural businesses.

Horticulture 1314
Plant Identification I
Trees, Shrubs, Vines, and Ground Cover

Course Objectives

Upon the successful completion of this course, the student will:

1. Identify plants using their morphology.
2. Classify plants using growth habits, leaf bearing habit, life span, and temperature tolerance.
3. Identify plants using both the common and scientific name.
4. Be able to prove information on landscape use and propagation of plants.
5. Be able to locate areas of distribution better suited for the particular plants growth.
6. Be able to identify plants from live specimens in the field, landscape, or container plants and from photographs or slides.

Course Outline

I. Plant Morphology

- A. Identify and define plant forms.
- B. Identify, define, and label major parts of the external anatomy of the plant.
- C. Identify common leaf shapes.
- D. Identify leaf tips.
- E. Identify leaf margins.
- F. Identify leaf types.
- G. Identify types of flower arrangement.
- H. Identify types of flowers.
- I. Identify individual flower parts.

II. Plant Classification

- A. Classify plants according to form.
- B. Classify plants according to growth habits.
- C. Classify plants according to leaf bearing habits.
- D. Classify plants according to life span.
- E. Classify plants according to temperature tolerance.
- F. Classify plants according to flowering characteristics.

III. Plant Propagation and Uses

- A. Identify the best method of propagation of the listed plants.
- B. List the uses for the listed plants.
- C. Label areas of distribution for listed plants.

IV. Identification

A. Use common name, genus, and species.
B. Spell names correctly.
C. Use the following list:

TREES

1.	Acacia Farnesiana	Sweet Acacia (Huisache)
2.	Acer palmatum	Japenese Maple
3.	Acer rubrum	Red or Swamp Maple
4.	Acer saccharinum	Silver Maple
5.	Acer saccharinum subsp. grandidentatum	Big Tooth Maple
6.	Albizia Julibrissin	Mimosa (Silk) Tree
7.	Betula nigra	River or Black Birch
8.	Carya illinoinensis	Pecan
9.	Catalpa bignoniodes	Southern Catalpa
10.	Celtis occidantalis	Common Hackberry
11.	Cercis canadensis	Eastern redbud
12.	Cedrus deodara	Deodar Cedar
13.	Chamaerops humulis	Mediterranean Fan Palm
14.	Chilopsis linearis	Desert Willow
15.	Citrus	(Species)
16.	Cupressus sempervirens 'Glauca'	Italian Cypress
17.	Eriobotrya japonica	Loquat (Japanese Plum)
18.	Fraxinus velutina	Arizona Ash
19.	Ginko biloba	Ginko (Maidenhair tree)
20.	Gleditsia triacanthos	Common Honey Locust
21.	Gleditsia triacanthos inermis	Thornless Honey Locust
22.	Ilex vomitoria	Yaupon Holly
23.	Juniperus scopulorum	Rocky Mountain Juniper
24.	Juniperus virginiana	Red Cedar
25.	Koelreuteria paniculata	Golden Rain Tree
26.	Lagerstroemia indica	Crape Myrtle
27.	Ligustrum lucidum	Japenese Ligustrum
28.	Liquidambar Styraciflua	American Sweet Gum
29.	Magnolia grandiflora	Southern Magnolia
30.	Melia Azedarach	Chinaberry
31.	Morus alba (Male)	Fruitless Mulberry
32.	Parkinsonia aculeata	Retama
33.	Phoenix canariensis	Canary Island Date Palm
34.	Pinus cembroides	Pinon Pine
35.	Pinus halepensis	Aleppo Pine
36.	Pinus thumbergiana	Japenese Black Pine
37.	Pistacia chinensis	Chinese Pistachio
38.	Platanus occidentalis glabrato	Texas Sycamore
39.	Populus deltoides	Cottonless Cottonwood
40.	Porsopis juliflora	Honey Mesquite
41.	Prunus cerasifera	Purple-leaf Plum
42.	Prunus persica	Common Peach

43.	Pyrus calleryana	Bradford (Callery) Pear
44.	Quercus macrocarpa	Burr Oak
45.	Quercus marilandica	Blackjack Oak
46.	Quercus nigra	Water Oak
47.	Quercus palustrus	Pin Oak
48.	Quercus phellos	Willow Oak
49.	Quercus rubra	Red Oak
50.	Quercus Shumardii	Shumard's Red Oak
51.	Quercus stellata	Post Oak
52.	Quercus texana	Texas Red Oak
53.	Quercus virginiana	Live Oak
54	Salix babylinica	Weeping Willow
55.	Sapium sebiferum	Chinese Tallow
56.	Taxodium distichum	Bald Cypress
57.	Ulmus americana	American Elm
58.	Washington robust	Mexican Fan Palm

SHRUBS

1.	Abelia grandiflora	Glossy Abelia
2.	Agave americana	Century Plant
3.	Acuba japonicavariegata	Gold Dust Plant
4.	Berberis Thunbergii	Japenese Barberry
5.	Buxus micropylla japonica	Japenese Boxwood
6.	Cleyera japonica	Cleyera
7.	Cortederia selloana	Pampas grass
8.	Cotoneaster glaucphyllus	Silverleaf Cotoneaster
9.	Dasylirion texanum	Texas Sotol
10.	Eleagnus macrophylla "Ebbengi"	Silverberry
11.	Eriobotrya japonica	Loquat
12.	Chamaerops humulis	Mediterranean Fan Palm
13.	Euonymus japonica	Evergreen Euonymus
14.	Euonymus japonica aureo-marginata	Gold-Edge Euonymus
15.	Euonymus japonica aureo-variegata	Goldspot Euonymus
16.	Fouquieria splendens	Ocotillo
17.	Hisbiscus rosa-sinensis	Chinese Hibiscus
18.	Hibiscus syriacus	Althea (Rose of Sharon)
19.	Ilex cornuta	Chinese Horned Holly
20.	Ilex cornuta cv. "Burfordii"	Burford Holly
21.	Ilex cornuta cv. "Rotunda"	Dwarf Chinese Holly
22.	Ilex vomitoria	Yaupon Holly
23.	Ilex vomitoria cv. "Nana"	Dwarf Yaupon Holly
24.	Juniperus chinensis "Pfitzerana"	Pfitzer Juniper
25.	Lagerstroemia indica	Crepe Myrtle
26.	Lantana Camara	Lantana
27.	Leucophyllum frutescens	Ceniza (Purple Sage)

28.	Ligustrum japonicum	Japanese Ligustrum
29.	Ligustrum lucidum	Waxleaf Ligustrum
30.	Myrica cerifera	Wax Myrtle
31.	Nandina domestica	Heavenly Bamboo (Nandina)
32.	Nerium oleander	Oleander
33.	Photinia Fraseri	Fraser's Photinia
34.	Photina glabra	Japanese Photinia
35.	Photina serrulata	Chinese Photinia
36.	Pittosporum tobira	Green Pittosporum
37.	Pittosporum tobira variegata	Variegated Pittosporum
38.	Pumbago auriculata	Blue Plumbago
39.	Podocarpus macrophyllus	Large Leaf Japanese Yew
40.	Podocarpus macrophyllus var. Makii	Small Leaf Japanese Yew
41.	Punica granarum	Pomegranate
42.	Pyrancantha coccinea	Pyrancantha
43.	Raphiolepis indica	Indian Hawthorne
44.	Rhododendron indicum	Indica Azalea
45.	Rhododendron hybrids	Kurume Azalea
46.	Rhus glabra	Smooth Sumac
47.	Rosmarinus officinalis	Rosemary
48.	Santolina chamaecyparissus	Santolina Gray
49.	Santolina virens	Santolina Green
50.	Sophora secundiflora	Texas Mountain Laurel
51.	Viburnum japonicum	Japanese Viburnum
52.	Wisteria floribunda	Wisteria Japanese
53.	Yucca aloifolia	Spanish Bayonet
54.	Yucca parviflora	Red Yucca

VINES AND GROUND COVER

1.	Agapanthus africanus	Lili-of-the-Nile
2.	Ajuga reptans	Carpet Bugle
3.	Aspidistra elatior	Cast Iron Plant
4.	Bifnonia radicans grandiflora	Yellow Trumpetvine
5.	Bougainvellea sp.	Bougainvillea
6.	Dichondra repens	Dichondra
7.	Euonymus fortunei "colorata"	Purpleleaf Wintercreeper
8.	Ficus pumila	Climbing Fig
9.	Gelsemium sempervirens	Carolina Jasmine
10.	Hedera helix	English Ivy
11.	Hemerocallis sp.	Daylily
12.	Lantana montevidensis	Trailing Lantana
13.	Lirope Muscari	Big Blue Lilyturf
14.	Lonicera japonica "Halliana"	Hall's Honeysuckle
15.	Lonicera semperivirens	Coral Honeysuckle
16.	Ophiopagon japonicus	Monkey or Mondo Grass
17.	Rosmarinus officinalis	Rosemary
18.	Sedum (varieties)	Stonecrop

19.	Trachelospermum asiaticum	Asian Jasmine
20.	Trachelospermum jasminoides	Star Jasmine
21.	Verbena peruviana	Garden Verbena
22.	Verbena pulchella	Sand Verbena
23.	Vinca major	Bigleaf Periwinkle
24.	Vinca minor	Littleleaf Periwinkle
25.	Wisteria (species)	Wisteria

POSTSECONDARY REFERENCE INFORMATION

The postsecondary information including course outlines, course objectives, competency profiles, and supporting academic courses for each of the agriculture 2+2 programs are included in the following manuals:

Dairy Products Management

Garden Center Management

Poultry Products Management

Retail Florist Management

Copies of these manuals are included along with this report.

AGRICULTURE 2+2 HOW TO MANUAL

A "How To" manual for developing an agriculture 2+2 program was developed for use by secondary and postsecondary institutions who may wish to develop a program for their students. A copy of this "How To" manual is included along with this report.